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Dental Digest

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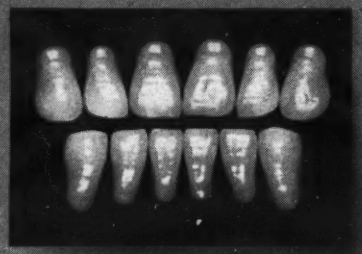

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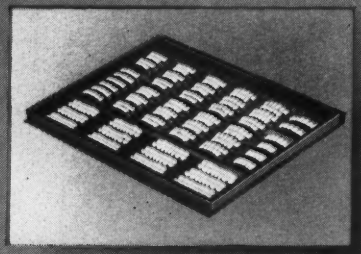

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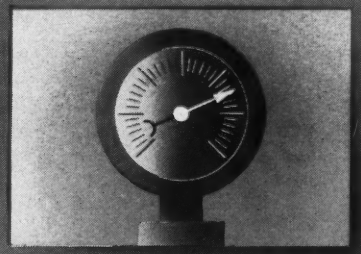

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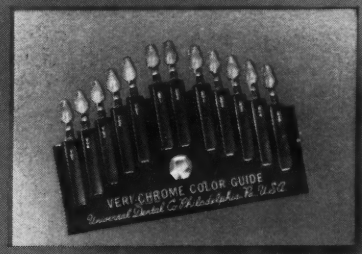

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About Our CONTRIBUTORS

LEVON M. SAGHIRIAN, D.D.S., (The Thomas W. Evans Dental Institute, University of Pennsylvania, 1924) who is engaged in the practice of general dentistry with special emphasis on oral surgery, has been a contributor to DENTAL DIGEST since 1938. A Fellow of the International College of Anesthetists and a member of the Philadelphia Society of Periodontology, Doctor Saghirian is intensely interested in teaching, both graduate and postgraduate, and in the dissemination of information concerning the advantages of electrosurgery. He has contributed widely to the literature on this subject. In his present article, POCKET ELIMINATION BY ELECTROSURGERY, which is the sixth he has published in DIGEST, Doctor Saghirian describes in detail two techniques of gingival electrosurgery and illustrates the results with two case histories.

J. W. SHERER, D.D.S., (University of Pennsylvania Dental School, 1909) has given clinics on direct wax pattern technique, jacket crowns, and various phases of crown and bridge work. Doctor Sherer also taught root canal technique for several years at the Columbia University postgraduate school. With his article, THE SHERER SPRING LOCK ATTACHMENT, he makes his first appearance in DIGEST. He gives specific directions for the constructing of this lock and the reason for each step described.

SIDNEY S. JAFFE, D.D.S., (Georgetown University, School of Dentistry, 1905) was for a number of years instructor at Georgetown University School of Dentistry and also gave special courses at the Naval Dental School, National Naval Medical Center, Bethesda, Maryland. Doctor Jaffe limits his practice to denture prosthesis. He first wrote on this subject for DENTAL DIGEST in 1939 when he published an article, SIMPLIFIED FULL DENTURE PROSTHESIS. In this month's DIGEST Doctor Jaffe presents A TECHNIQUE FOR MANDIBULAR IMPRESSION, a procedure for obtaining an impression under its own weight with the same compression on the ridge and the periphery that it will maintain when completed.

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POCKET ELIMINATION

by Electrosurgery

LEVON M. SAGHIRIAN, D.D.S., Philadelphia

DIGEST

The purpose of gingivoplasty is to aid nature in restoring the periodontium to a state of health by eliminating pockets and molding tissues. It is necessary to remove (1) the soft tissue side of pockets, (2) pathologic and excess tissue; and to produce (3) deflecting contours and (4) interproximal sluiceways. Several methods by which pocket elimination may be accomplished are discussed in this article and the step-by-step procedures of two techniques of gingival electro-surgery are outlined.

Subgingival Curettage

This method is aimed at resuscitation of pathologic tissue. The theory that reattachment of tissue to denuded root surfaces would take place even if the cementum were not destroyed or necrotic is questionable.

Method—The execution of this method is slow and indirect. Pathologic areas are not visible and are difficult of access. Anesthetics are not commonly used although the procedure may be painful.

Scaling and Curettage—It is generally believed that teeth seldom become hypersensitive unless the root surfaces are traumatized or irritated by caustic medication. Excellent results may be obtained by scaling and subgingival curettage if the pockets are shallow and are completely eliminated. In the event that reattachment is not an actuality, gingival recession and lengthening of the clinical crown inevitably follows as in other methods.

Chemosurgery

Disadvantages—Although this is a bloodless method and requires no anesthetic the extent of destruction is difficult to control and the application of caustics may be followed by secondary hemorrhage and hypersensitive roots.

Advantages—The technique is of value as a compromise treatment in the presence of advanced debilitating disease. When judiciously used, chemosurgery combined with subgingival curettage will assure more positive results.

Surgical Gingivoplasty

Flap, semi, or modified flap, and the gingivectomy techniques require clinical experience and judgment. These methods are rapid and afford a direct approach. Conditioning of the patient, premedication, complete regional or general anesthesia will make these procedures painless.

Modifications—A thorough understanding of the surgical principles involved will enable the operator to get good results with the method of choice. The Crane-Kaplan technique, a basic surgical technique, is recommended for its simplicity. Bone curettage is not recommended and alveolotomy is restricted to the architectural results required and the reduction of bone pockets.

Operative Disadvantages—1. The profuse bleeding which accompanies the surgical technique obstructs the field and must be restrained either by the use of an aspirator or by the application of coagulating and hemostatic agents.

2. In order to prevent hypersensitivity of teeth, irritation of exposed root surfaces by caustic medication should be avoided and the wound allowed to heal with minimum interference.

Electrosurgical Gingivoplasty

All the theories pertaining to surgical technique apply to electrosurgery. In addition, special training in the use of electronics is required. Surgeons must understand the difference between (a) cutting, (b) coagulating, and (c) dehydrating currents, and must learn through experience how to control and to use these various currents.

Advantages—1. The electronic scalpel sterilizes as it cuts without trauma.

2. Infection in the pockets is more or less prevented from getting in the bloodstream.

3. Controlled coagulation and the sealing of capillary and lymphatic vessels gives hemostasis and prevents regrowth.

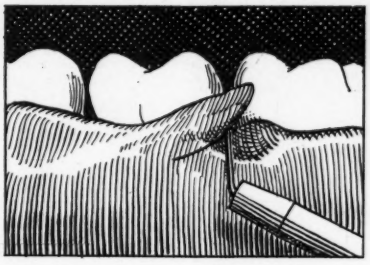
4. The extent of tissue damage can be accurately forecast.

Highly Developed Sense of Touch Required—It is important to develop a sense of touch to a degree that incisions are made down to the periosteum and short of contact of the electrode with bone. This is not a theoretical aim; it is actually possible with advanced technique and the result of clinical experience.

Treatment of Periodontosis and Hyperplasia

The Same Objective—Any one of the methods of pocket elimination described has its usefulness and should be well understood. All will give good results when the essential principles

A. *First step in gingivotomy: festooning of the detached tissue by the elliptical loop electrode to the full depth of the pocket.*



B. *Second step in gingivotomy: coning of interproximal tissue with the needle electrode serves to produce an interproximal sluiceway.*

C. *Third step in gingivotomy: planing of shelves by the round loop electrode serves to form a deflecting contour.*

of surgery are observed. The objective is the same with each method, that is, the elimination of local symptoms. These procedures will not, however, completely solve the problem of treating chronic periodontal diseases, namely, periodontosis and hyperplastic gingivitis, unless etiologic factors are also eliminated.

Essential Care—1. Adequate prophylactic care must be given.

2. Needed extractions and restorations must be accomplished.

3. Traumagenic occlusion corrected.

4. Masticatory function must be restored.

5. Attention is given to diet and nutrition.

An Asset to Good Health—When pockets are completely eliminated, periodontosis and hyperplasia are by no means unmanageable. Such disturbances can be arrested and even cured. Aversion to the use of the steel or electronic knife should not obstruct progress in meeting the problem if (a) efficient mastication, and (b) retention of normal dentition in a healthy condition can be attained by their proper use.

Home Care—In the treatment of these local degenerative and abnormal disturbances and to prevent the recurrence of infection, patients should be impressed with the necessity of additional home care. An intelligent patient will readily understand and cooperate.

Indications

Electrosurgery is the method of choice in the following situations:

1. The removal of growths and excess tissue.

2. The resection of edematous and fibromatous hyperplastic tissue due to low grade infection, irritation, and the result of medication with certain drugs, such as dilantin.

3. Excision of operculi of unerupted third molars.

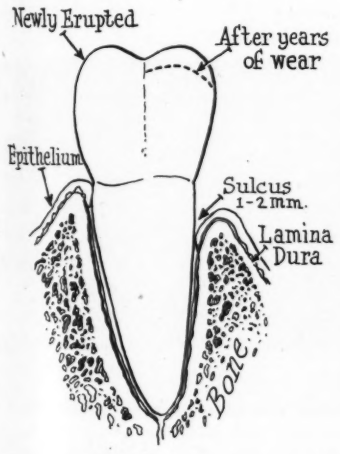
4. Exposing of delayed erupted and unerupted teeth as preorthodontic treatment.

5. The changing of abnormal frenums and muscle tissue attachments.

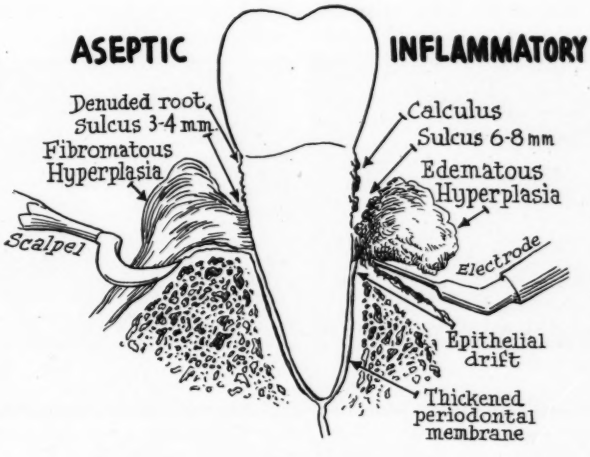
Contraindications

Certain essential characteristics of electrosurgery must be understood:

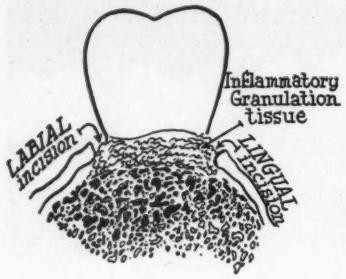
1. It should not be used with in-



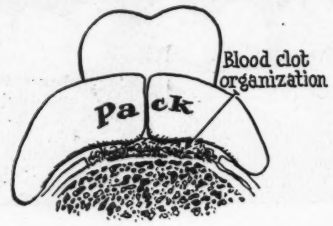
D. *Physiologic states. Normal recession on right side.*



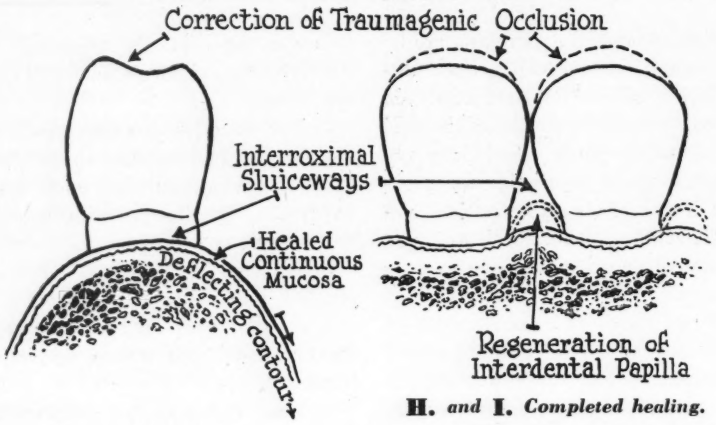
E. *Pathologic states associated with periodontosis. First step in gingivectomy. Resection of detached tissue with knife (left side) with electrode (right side).*



F. ***Second step in gingivectomy: extirpation of partly coagulated inflammatory granulation tissue.***



G. ***Third step in gingivectomy: application of a protective pack.***



H. ***and*** **I.** ***Completed healing.***

flammable anesthetics such as ether, cyclopropane, ethylene, ethyl chloride, or vinethine.

2. If general anesthesia is desired, nitrous oxide, chloroform or intravenous pentothal sodium may be safely used.

3. Local anesthesia should be made adequate, preferrably with premedication or co-medication according to the technique described by Copen.[1]

4. The application of the electrode should be bold and rapid, lest the coagulation of deeper structures result in sloughing.

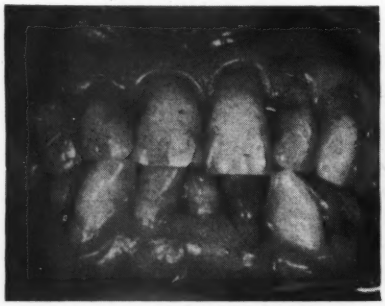
5. The electrode should not come in prolonged contact with alveolar bone, exposed denuded roots, or large metallic restorations. Deep heat penetration may possibly cause devitalization of the pulp.

6. Occasional contact with crowns, bridges, metallic instruments, and retractors will do no harm as the current is well dispersed over a large area. Plastic retractors and wooden tongue depressors may, however, be used as a further precaution.

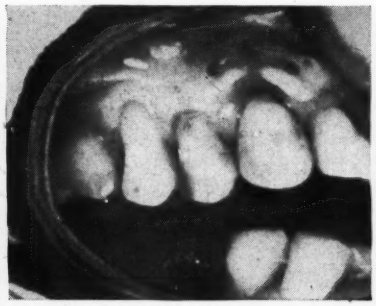
7. The electronic apparatus should be used at the lowest voltage that will cut freely with as little sparking as possible and with the finest line of coagulation on either side of the incision.

Conditions Unfavorable to Gingivoplasty—In addition to knowing how to use electrosurgical modalities it is also necessary to evaluate the patient and to rule out the following conditions which make gingivoplasty unfavorable: (1) Active states of debilitating diseases, blood dyscrasias, endocrinopathy, and traumatism. (2) When disease extends into maxillary trifurcations; where there is excessive mobility due to loss of bone support and teeth are depressable in their sockets. (3) Isolated, acutely inclined, malposed, and extruded teeth which may be a detriment to prosthetic planning. (4) Esthetic limitations beyond technical correction. (5) In the presence of acute infections of the mouth. (6) In severe nutritional deficiencies. (7) Patients under emotional stress who lack the willingness or ability to cooperate.

[1]Copen, S. Irving: Premedication by Co-medication in Local Anesthesia, DENTAL DIGEST **54**:309-314 (July) 1948.



1. ***Right maxillary cuspid with detached edematous gingivae, deep pocket with suppuration; tooth mobile; toothbrush erosion; nonvital mandibular incisor.***



2. ***Depth of pocket indicated on gingivae. Treatment: electrosurgical resection, local anesthesia.***

3. ***Two weeks following electrosurgical resection, test bite opening by utilizing patient's denture which was remodeled with addition of an acrylic bite-block occlusally, covering the left posterior teeth.***

4. *The application of the monoterminal electrode.*

5. *Superfluous granulation tissue electrocoagulated by means of the biterminal electrode.*

6. *Three months after electrocoagulation. Local symptoms greatly relieved. No ear complaints. Note healing of soft tissue.*

7. *Permanent bite opening appliance in place. Occlusion balanced.*

Preoperative Care—(1) Active prophylaxis and instrumentation precedes the operation by five days. (2) The patient's mouth should be in a reasonably clean state and with oral hygiene established. (3) Avoid combining needed extractions with gingival surgery.

Complete Anesthesia—1. To make regional anesthesia complete and allay apprehension, it is desirable to include in the anesthetic solution 50 milligrams (1 cc.) of demerol hydrochloride, which is injected into the soft tissue by infiltration or conduction, with preferrably a 4% procaine and 1/50,000 epinephrin solution.

2. Make sure that there is sufficient anesthesia to start with as it is not practical to augment the anesthesia after incisions are made. The resulting hemorrhage and blood supply quickly dissipates the anesthetic solution.

3. In addition to infiltration or conduction anesthesia as required, a drop or two of the procaine solution with a vasoconstrictor is injected into each interdental papillae, mainly to promote hemostasis.

Electrosurgical Techniques

Individual Resection (Gingivotomy)—The technique consists of three steps:

First Step—Festooning of the detached tissue by the eliptical loop electrode (Fig. A).

Second Step—Coning of interproximal tissue with the needle electrode (Fig. B).

Third Step—Planing of shelves by the round-loop electrode (Fig. C).

Case Report No. 1 (Figs. 1 to 7)—patient, a woman of 50, was referred by an internist. Symptoms, considered psychosomatic in origin, included nutritional disturbances, diarrhea, nausea, neuritis.

Clinical Observations—1. Deep alveolar recession. 2. Traumagenic occlusion. 3. A closed bite. 4. Evidence of tooth brush erosion on left side. 5. Suppurating pocket on right maxillary cuspid. 6. Deep molar pockets.

Clinical Impression—Periodontosis associated with periodontitis and traumagenic occlusion (Fig. 1).

Treatment—Gingivotomy, bite opening, and balancing of occlusion.

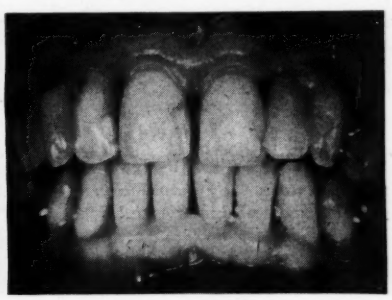
Gingivectomy

The technique consists of three steps:

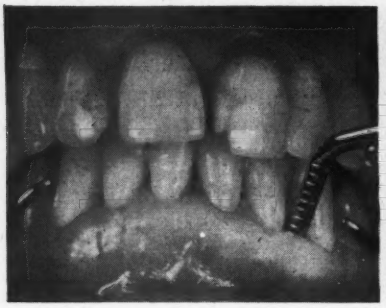
First Step—Resection of detached tissue by electrosurgical acusection, incision following the outline made

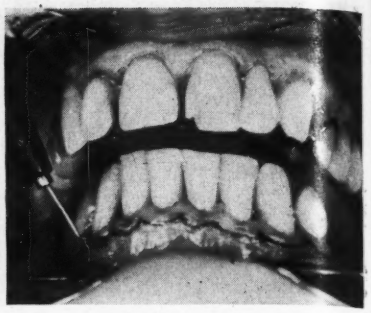
8. *Periodontosis associated with periodontitis complex.*

9. *Three weeks following electrocoagulation therapy in lower jaw, showing healing.*



10. *Three weeks following electrosurgical resection in upper jaw and further progress in lower jaw.*





11. *Five years after electrosurgical resection. Upper jaw: asymptomatic (compare with Figures 8 to 10). Tissues normal, no pockets present, restorations indicated. Note satisfactory results of previous gingival resection and regeneration of tissue. Lower jaw: tissue color and tone are normal; texture is fibrotic, noninflammatory, noninfectious, a true picture of periodontosis. Right: a periodontal probe No. 1 (Crane-Kaplan) a blunt blade calibrated in millimeters, measuring the depth of pockets and testing tissue tone.*

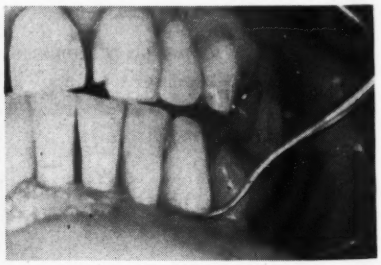
12. *The use of regional anesthesia. The bleeding points seen here were made by pocket markers, right and left, No. 2 and No. 3 (Crane-Kaplan). One of these tweezer type instruments, used with the flat blade forced to bottom of pockets, was held flat and parallel to the long axis of the tooth. The right angle blade engaged and punctured the soft tissue externally, outlining the incision to be made.*

13. *Active wire electrode and cutting current used in making incision.*

14. *Labial and lingual incisions. Electrosurgical incisions are rapid, almost bloodless. The high-frequency current sterilizes as it cuts.*

15. *Curved knives, right and left, No. 4 and No. 5. (Crane-Kaplan) or periodontal knives, No. 1 and No. 2 (Sanders) were used to cut through the periosteum and to lift the strip of tissue in one piece. This procedure was repeated lingually.*

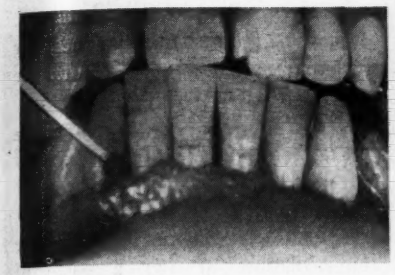
16. *The inflammatory granulation tissue is now exposed. If bleeding persists, light electrocoagulation by the application of a ball burnisher type (Fig. 4) or a biterminal electrode (Fig. 5) facilitates removal.*

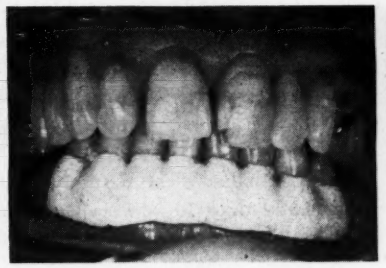


17. *Curets, No. 8 and No. 9 (Crane-Kaplan) are specially designed for the gross removal of granulation tissue from end to end, labially and lingually.*

18. *Hawk-beak scalers No. 3 and No. 4 (Ivory) are heavy beaked scalers used for further curettage and scaling of the tooth surfaces free from calculus. They penetrate deeper into interproximal surfaces.*

19. *Scalers No. 7 and No. 8 (Ivory, Younger-Good) are finer instruments, adapted to curettage around the necks of the teeth.*

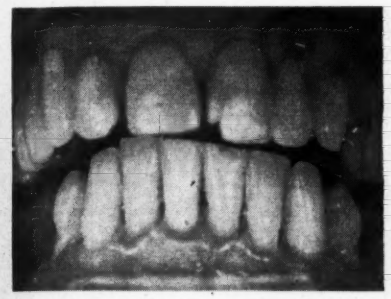




20. *Tissue-files No. 18 and No. 19 (Ivory-Tompkins). These instruments in particular, should be sharp at all times. They will remove the last particles of granulation tissue and debris and promote bleeding.*

21. *The operation is now completed. Between 2 lines of incision, one labial and the other lingual, lies a space with exposed clean, shiny bone, and the root surfaces of teeth. Blood is encouraged to collect and clot in this space (Figs. F and G). The pack is applied externally.*

22. *To expedite healing, adequate protection from infection and trauma is provided until blood clot organization and epithelialization takes place. This procedure is necessary for the comfort of the patient and to insure his ability to masticate during the period of healing. The art of adapting the pack is equally as important as the operation itself. Lingual view showing pack in place.*



23. *One week later. The pack has been removed and the wound flushed with warm saline solution. Sloughed tissue is carefully wiped off with a cotton applicator dipped in hydrogen peroxide and flushed again. Soothing agents may be applied lightly and a second pack reapplied.*

24. *The procedure may be repeated if necessary in about a week. Healing here is at the end of 2 weeks.*

25. *The pack is deleted as the regenerated tissue is sufficiently epithelialized. The operated area is covered with a coating of butynmetaphen salve applied with syringe through a blunt needle.*

26. *Primary surgical healing has taken place in 3 weeks. The patient is instructed in the use of round toothpicks, plastopix, stimudents, denticator, or other massaging and exercising aids. New tissue has regenerated between the incisions and is now continuous. This dense tough tissue hugs the necks of the teeth. The recession produced is esthetically acceptable and will be improved by normal regeneration near zero crevices. Deflecting contours and interproximal sluiceways are produced. The interdental papillae will eventually assume their normal contour (Fig. H).*

27. *Healing 6 weeks after operation. Compare with Figures 8 to 11. The restoration of teeth in the upper jaw and reconstruction of edentulous areas completes treatment. The patient is instructed in oral hygiene, continuation of toothpick exercise, and prophylactic care every 3 months.*

---

by markings on the exterior of the soft tissue representing the bottom of pockets (Fig. E).

Second Step—Extirpation of partly electrocoagulated inflammatory granulation tissue with loop electrodes and Crane-Kaplan, or similar curets, scalers, and tissue files (Fig. F).

Third Step—Application of a protective pack (Fig. G).

Case Report No. 2 (Figs. 8 to 27)—The patient, a woman of 45, noticed loosening of teeth, bleeding gums, and discomfort in chewing.

Roentgenographic Examination—Diffuse atrophy of alveolar bone, and a break in the crest of bone.

Clinical Examination—1. A clean, well-cared-for mouth. 2. Moderate amount of calculus. 3. Gingivae noninflammatory, color and tone normal,

edematous in texture. 4. Pockets moderately deep with exudation of extravascular fluids on pressure. 5. Beginning diastemata and abnormal mobility of teeth.

Clinical Impression—Periodontosis associated with periodontitis.

Treatment—Subgingival curettage and electrocoagulation of tissues in lower jaw. Electrosurgical resection of tissues in upper jaw (Figs. 8 to 10). Five years later, electrosurgical gingivectomy (Fig. 11).

Postoperative Care

The Pack—The routine use of the pack is recommended. It will protect the wound against infection and irritation and serve to make the patient comfortable. Following is the formula and directions for mixing the pack:

Powder

Zinc oxide ..... 120 grams
Finely powdered rosin ..... 120 grams

Liquid

Eugenol ..... 40 cubic centimeters
Benzaldehyde ..... 20 cubic centimeters
Olive oil ..... 0.6 cc. (10 drops)

Reinforcing agent, coarse asbestos fibers.

Directions—1. to 20 drops of liquid add enough asbestos fibers to soak fluid.

2. Mix like cement until mass is sufficiently thick to be kneaded with fingers.

3. With generous addition of powder, roll in palms, a ribbon 1 centimeter in diameter.

4. Apply in 2 pieces, 1 to external and 1 to internal surfaces.

5. Cover cut surfaces and ⅓ of crowns.

6. Join, by gentle pressure, the 2 crown sections at interproximal surfaces, using patient's lips and moist gauze sponge to adapt pack.

7. Setting time is 15 to 20 minutes in the mouth.

8. Replace in 5 days and allow to remain at least 1 week.

Surgical Healing—Until surgical healing is complete, or for a period of about 3 weeks, no caustics, no coagulants, or antiseptics are indicated. Bland mouthwashes, anodynes, or sedatives may be prescribed after the pack is deleted.

Hypersensitivity—Gottlieb's[2] method is used to control hypersensitivity of exposed roots. This involves (1) silver-nitrate calcium chloride, (2) zinc chloride-potassium ferrocyanide impregnation, or (3) a paste of sodium fluoride, Kaolin and glycerine, ⅓ by weight each, may be used instead. Symptoms will subside spontaneously in most instances if time is allowed.

Rigid Hygiene Advocated—The interdental tissues are exercised by round toothpicks, the toothbrush, or the interdental stimulator. Rigid mouth hygiene is advocated and supportive systemic and local treatment is instituted.

1930 *Chestnut Street.*

[2]Gottlieb, Bernard: Caries Prophylaxis by Obstruction of Invasion Roads, Am. J. Orthodont. **33**:827-832 (December) 1947.
[2]Gottlieb, Bernhard: Dental Caries, Philadelphia, Lea & Febiger, 1947.

Correction and Apology

THE AUTHORS of the excellent article on transillumination that appeared in DENTAL DIGEST last month were Gordon R. Winter and Frank J. Fiaschetti. The senior author was improperly identified as George Winter. Our apology to Doctor *Gordon* Winter of the University of Pennsylvania.

Tooth Decay in Relation to Diet and General Health

NILS P. LARSON, M.D., Honolulu, Hawaii

1. In a study of 74 infants on a rice diet, almost 100 per cent showed caries and almost 50 per cent of all erupted teeth were carious.

2. In a group where rice had been replaced by potatoes and taro only 7 per cent were carious and 4 per cent of the erupted teeth were carious.

3. Twenty-two Polynesian children eating the traditional poi and fish diet had almost perfect teeth (95.4 per cent free of caries).

4. Fifty-five Polynesian children eating rice as their main food showed 98.2 per cent with caries.

5. Among 156 miscegenetic persons eating largely potatoes and fish, 89 per cent had teeth free from caries.

6. In children with rampant caries in Hawaii the daily addition of carotene definitely reduced activity.

7. In a group of 779 Japanese children examined in Hawaii only two had noncarious teeth. But in a group of 109 white children of approximate ages, examined at the same time 55.6 per cent were free of caries. The white children ate much more of fruit and vegetables and less of the cereal starches.

Systemic Disorders

These observations left little doubt that diet was the cause of caries and that the alkaline and acid factors of diet were important. Evidence indicated that dental caries is primarily a systemic disorder, an imbalance perhaps in the tissue ions.

Results of Dental Examinations

Dental examinations of children from three plantation groups who were all, with the exception of the newly arrived Filipinos, in a state of vivacious health, showed that the Hawaiian children have more caries than any of the other groups.

Caries by Race—Thirty-seven per cent of the teeth in 278 Filipino children reared in Hawaii were carious against 11 per cent in the newly arrived. This observation changed an opinion previously expressed: "A condition of excessive dental decay can be used as an indicator of a dietary fault. This fault is associated with a high infant mortality and morbidity." The Japanese with 50 per cent of all erupted teeth carious and only 1 per cent caries-free are in contrast to the Caucasians with 31 per cent carious and 11.3 per cent of whom have caries-free mouths.

(*Continued on page* 182)

The Sherer
SPRING LOCK *Attachment*

J. W. SHERER, D.D.S., West Orange, N. J.

DIGEST

In making use of the spring lock attachment for removable replacements, the operator should be familiar with the necessary steps of abutment preparation required in any type of precision bridge construction. The application of this method lends itself as readily to the direct as the indirect technique. In either case, space must be provided in the wax pattern to receive a platinum box, the female member. Step-by-step directions and the reasons for employment of each step are given here for constructing the spring lock attachment for removable replacements.

Technique

1. The cast obtained from a hydrocolloid impression with the dowelled dies in place shows that the abutment preparations are reasonably parallel; in fact, they are slightly divergent gingivo-occlusally.

2. The wax patterns are built up on both dies to occlusion and full contour.

3. The wax is carved from each pattern to provide room for the platinum box to be subsequently soldered into the castings. This is done with sharp chisels and excavators, leaving a very thin wall of wax in order to set the box to its maximum depth within the casting later.

4. The wax patterns are vacuum invested, burned out, and cast in a type B abutment gold.

5. The abutment castings may be checked in the patient's teeth for accuracy of fit.

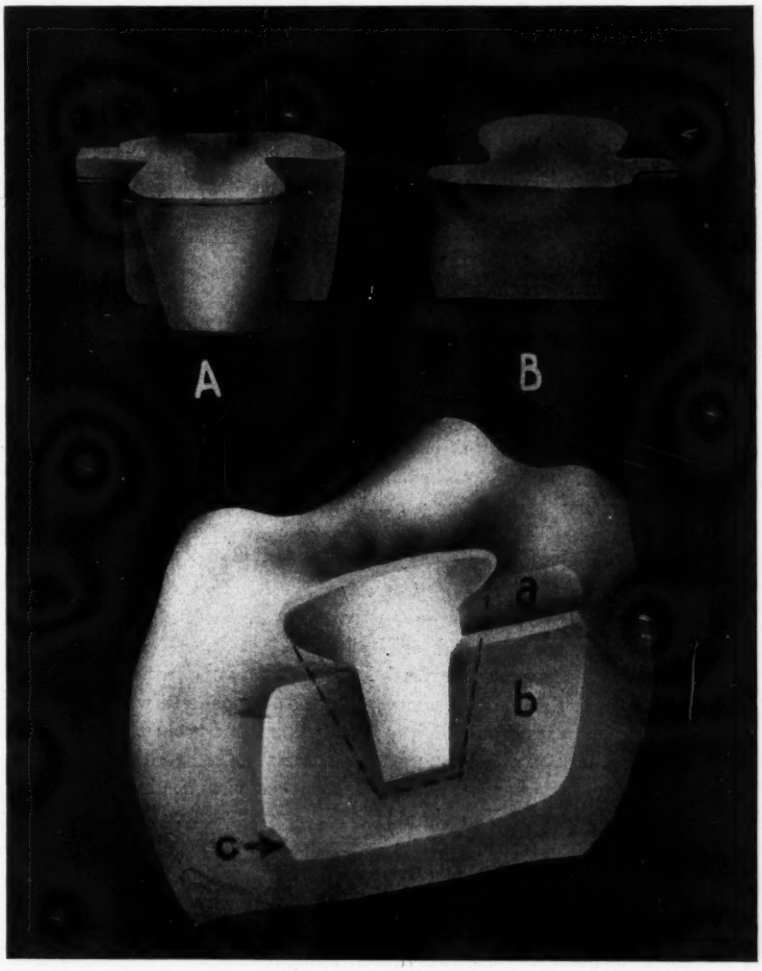
Construction of the Abutment Piece

1. Select the largest size mandrel that can be placed in the casting loosely and line it up with its fellow in the other casting.

2. Platinum boxes are made as shown in Figure 8.

3. The boxes are paralleled within the castings, held with sticky wax, and removed from the dies.

4. Soldering investment is flowed into the box and a loose fitting, previously burned out carbon point inserted of sufficient length to engage the investment securely during soldering.



1. ***Abutment piece with platinum box soldered in, small step cut at linguo-occlusal angle (a) for cast tab to which spring is soldered. Flat approximal surface affording frictional contact to cast male portion (b). Note small notch ground at bucco-gingival angle (c). (A) Cast male and spring. (B) Proximal view of cast male to which upright of intermediary of bridge is soldered.***

(Only the smallest amount of investment needed to hold the box in place should be used in order to get the case very hot quickly and thus effect a complete union of the parts. Use solder in wire form, 23-gauge, 800 fine, and feed in one continuous stream).

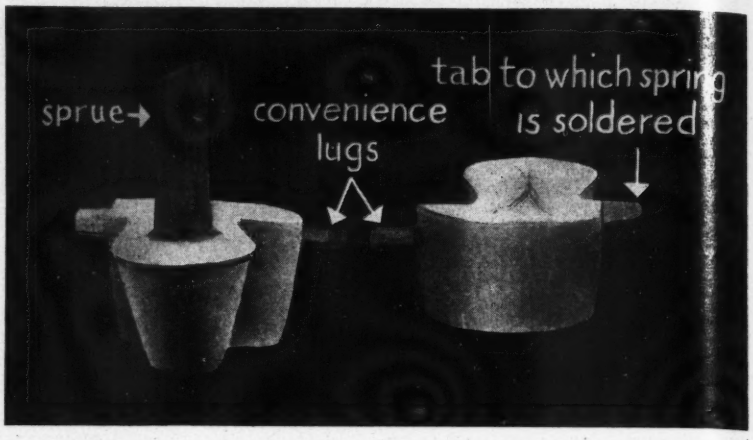
5. Plunge in hydrofluoric acid to remove all traces of investment and flux.

6. The excess of box is removed, ground to occlusion, and the occlusal edge of box chambered with a small flame-shaped plug finishing bur.

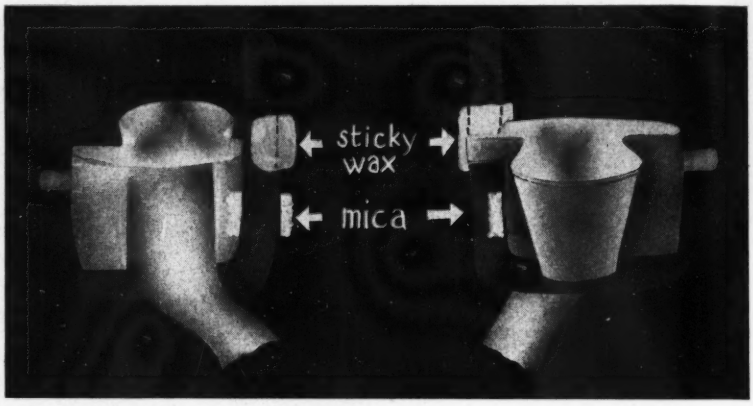
7. The approximal side is made flat with stones and flat files. Make sure that this flat face is parallel with the axial wall of the box by placing the mandrel in it from time to time. It is permissible to have a slight taper toward the occlusal.

8. Remove the burred edges from the approximal opening of the box with a sharp flat chisel and give the face a thorough burnishing with the smooth side of a fine flat file.

9. Grind a small step at the approximo-lingual-occlusal angle and polish with a fine bristle disc. Figure 1 shows finished crown abutment piece so treated.



2. *(A) Wax pattern of male with sprue attached. (B) The casting, sprue removed, tab to which spring is soldered and lug for convenience of handling (later ground off) are shown.*



3. *Showing spring waxed to place on tab and thin mica in place prior to investing for the last soldering, all other steps of constructing bridge having been completed.*

Construction of the Male Portion of the Attachment

1. Replace the abutment piece on the die, wipe out box and polished face with microfilm, and fill box with molten inlay wax. Use swaging plier to obtain perfect adaptation of wax.

2. Remove from box and inspect for maximum condensation of wax.

3. Insert pattern again and add more melted wax also on approximal face and step to a thickness of about 24 gauge and compress again lightly with swaging plier.

4. Trim edges of inlay wax, slip off pattern and inspect. You should now have a pattern free of all imperfections.

5. Again seat pattern and with a razor blade held at right angle to the approximal face of wax pattern remove an L-shaped section of wax 1 millimeter in width, running from the lingual across the gingival to buccal, and from the linguo-gingival angle to the occlusal surface. This area is later to be occupied by the spring.

6. A small, half-round wax shape is added opposite to wax tab (fitting the approximo-occlusal step) which is necessary for handling after sprue is removed from casting.

7. Sprue pattern as shown in Figure 2, invest, and cast in a type C gold. After pickling, the under surface of this casting receives a light brushing with a mounted bristle disc and metal polish. Check for nicety of fit within abutment piece, remove sprue, and grind to occlusion.

8. The entire procdeure as outlined is carried through for the premolar.

Construction of Spring

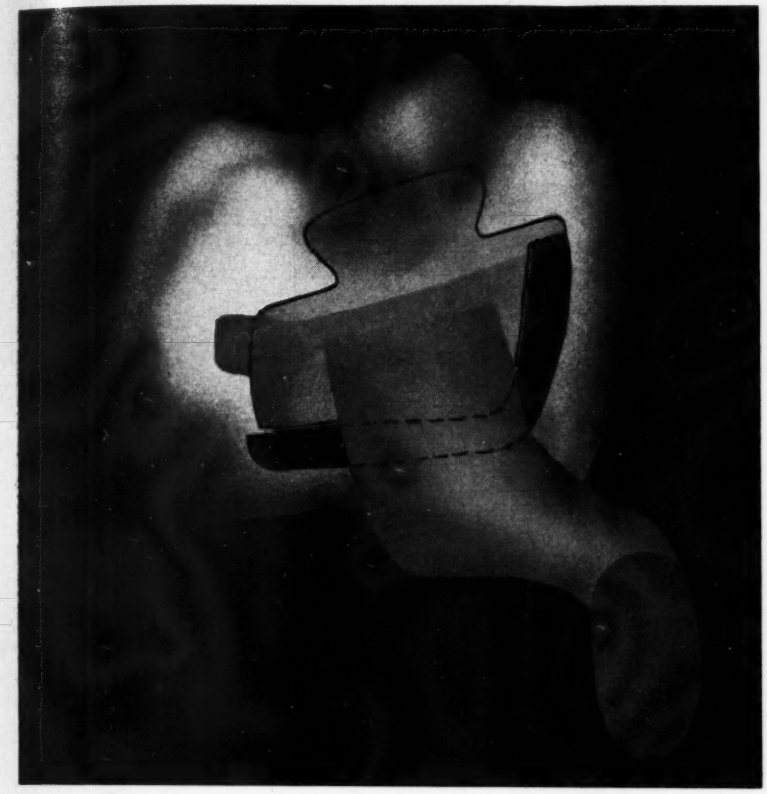
1. Cut spring from a flat piece of high fusing clasp metal stock as shown in Figure 10. Four millimeters of surplus length on its occlusal end is necessary for waxing securely to casting later.

2. Seat both removable attachments within their respective abutment pieces.

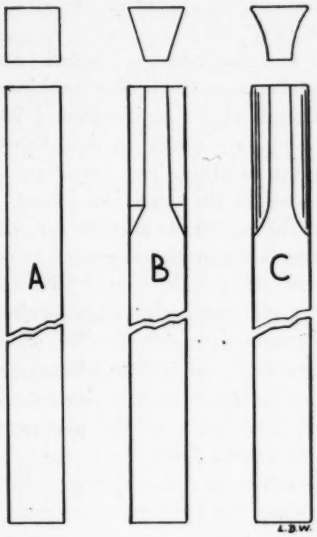
3. Check adaptation of spring but do not solder on at this stage.

Soldering Attachment to Uprights

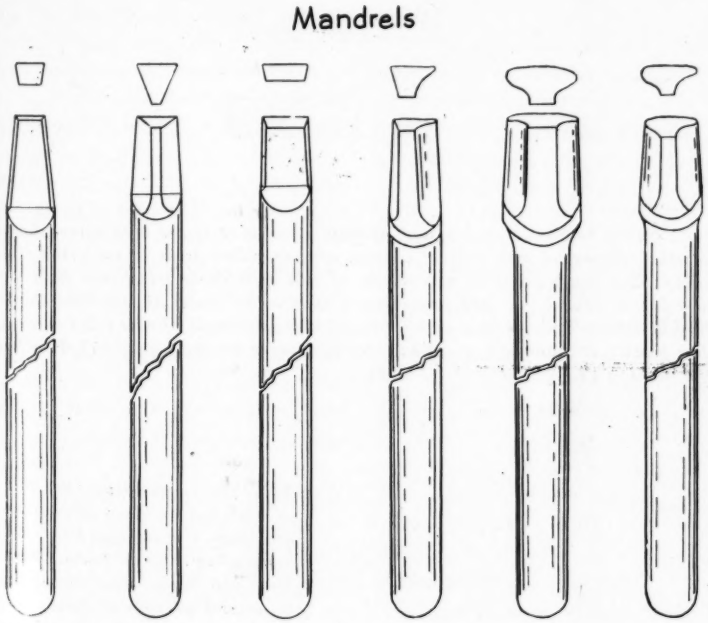
1. Intermediary teeth are positioned and ground to occlusion, saddle and boxing are completed.



4. *Appearance of complete attachment, in this case serving as abutment for unilateral lower replacement with lingual bar. Note convenience lug left on for easy removal with thumb nail.*



5. *(A) Mandrels are made from square nickel silver wire gauges 8x12. (B) Mandrel partly shaped with flat file. (C) Mandrel is given additional shaping with stones and made smooth with rubber wheels.*



6. *and* **7.** *Variety of shapes in mandrels.*

2. Make casting and return to the cast. (Sturdy uprights at both ends are absolutely necessary to assure great strength where they are joined to the approximal plates of the attachments with 800 solder. Solder must not be flushed over the little tab to which the spring is attached later. If this happens, it must be ground away so as not to interfere with the close adaptation of the spring).

3. After soldering each attachment to its respective upright, separately, return bridge to the cast and check alinement, smooth insertion, and proper embrasure conformation, and then polish.

Attaching Spring

1.The porcelain tooth adjacent to the attachment is removed from its box and the spring is securely waxed to the cast tab of the attachment with sticky wax.

2. The bridge is now slipped from its removable abutment and a thin sliver of mica inserted between the spring and the attachment proper, just below the sticky wax to prevent solder from uniting the entire upright

portion of the spring to the attachment (Fig. 3).

3. The bridge is invested and cleaned of wax. The spring is soldered to the tab with a small piece of 700 fine solder and placed in hydrofluoric acid for pickling. The procedure is repeated for the other attachment.

4. The occlusal surplus of the springs is removed and ground to occlusion. It will be found that the bridge will seat itself within its abutments with a smooth friction effect. If care was exercised in placing the springs in good contact against the approximal faces of the abutments and in waxing them fast to the tabs, there will be no necessity after soldering to increase the tension for greater retention. Little retention is required to keep a bridge in position when constructed with this type of attachment. However, to make it possible to increase the holding quality later, should it be necessary, provision is made for this at the bucco-gingival angle of the abutment piece.

Providing Locking Action

1. With the attachment completely seated in its abutment piece, hold bridge in your fingers and make a mark with a sharp, pointed instrument at the point where the upper edge of the gingival end of the spring is in contact with the approximal face of the abutment.

2. Slip the attachment out of the box and with a small knife-edged stone or file cut a step about ½ millimeter deep and wide below the mark.

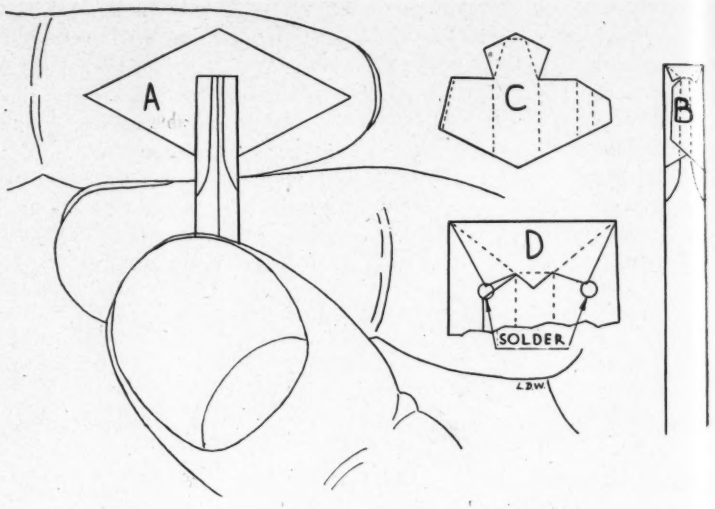
3. The same is done on the other abutment. This provision enables the operator to increase the tension on the spring with a suitable instrument. A locking effect is given to the attachment *by the way in which the end of the spring locates itself within that slight step.*

Heat Treatment

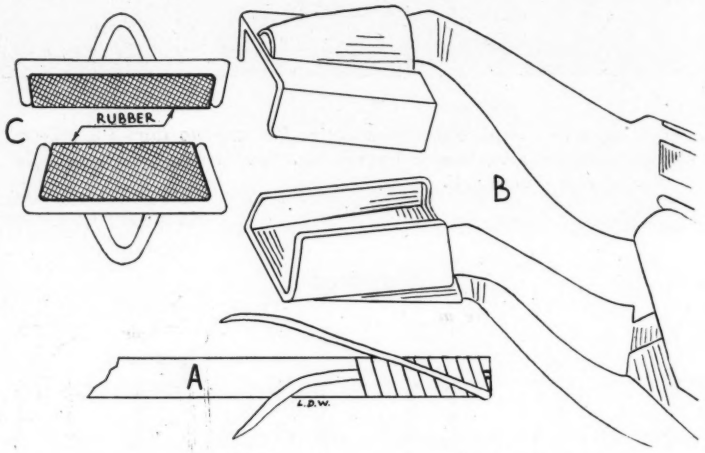
1. The bridge is carried to 1300° F. in a pyrometer furnace and held there for at least five minutes in order to release all stresses incorporated during its fabrication.

2. Plunge into 50 per cent sulphuric acid.

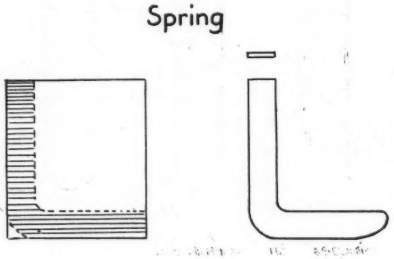
3. Temper by carrying up the pyro-



8. *(A) Showing mandrel positioned on piece of platinum .0015 thickness to be adapted over mandrel as shown at B. (C) Shows how platinum is cut (solid lines) while being adapted to mandrel. (D) Circles on drawing indicate where platinum solder should be placed to fuse all joints. Solder pieces 1 millimeter square .002 millimeter thick, fusing point 2012 F. Use blow pipe.*



9. *(A) Shows how roughly adapted platinum box is wrapped with waxed broad floss silk and swaged into perfect contact with mandrel prior to soldering. (B) Swaging plier constructed of two pieces of cast coin silver trays that hold soft rubber blocks (cut from auto inner tube) adapted to beaks of suitable plier. A discarded bayonet forcep does admirably. (C) Cross section of cast trays carrying rubber blocks. Dimensions of rubber blocks: Lower block, 5/8x5/8x1/4 inches. Upper blocks: 11/16x11/16x1/8 inches.*



10. *Spring cut from flat piece of high fusing clasp metal 26 or 28-gauge. Use straight high speed separating discs or jeweler's saw. Must be kept flat. Note that transverse portion of spring runs in the direction the metal was rolled.*

meter furnace to 840°. Cool down to 480° during fifteen minutes and into cold water. A light polishing completes the operation.

Conclusion

1. All patterns are vacuum invested and precision casting technique must be employed throughout.
2. There is a definite reason for every step described in this technique.
3. During many year's experience it has rarely been necessary to increase the tension on these springs. The ideal removable appliance is one that is easy to insert and that requires only enough retention to prevent removal during function. More retention might jeopardize the health of the abutment teeth.
4. The use of these attachments for a period of ten years with entire satisfaction proves that (a) short cuts are inadmissible, (b) unsuitable materials should not be used, and (c) the work must not be carried out in any but the most meticulous way.

8 *Gregory Place.*

THE STEVENS-JOHNSON SYNDROME

JOHN E. GORMAN, Commander (MC) U.S.N.

DURING RECENT years an increasingly large number of case reports has appeared describing a syndrome characterized by the following: (1) dermatitis, (2) stomatitis, (3) ophthalmia, (4) urethritis, (5) balanitis, (6) pneumonia.

1. These symptoms appear in varying combinations.
2. All are rarely present in the same patient.
3. Cases have been reported frequently over a period of many years under a variety of names.

In 1822 dermatitis with ophthalmia and mouth involvement was described. Since then many additional cases outlining the other features of the symptom complex have appeared in the literature. Most of the early reports were in the European literature but since 1900 occasional references have appeared in the American journals.

Among the names assigned the condition were: (1) Erythema multiforme exudativum (2) ectodermosis erosiva pluriorificialis (3) ulceromembranous stomatitis (4) muco-cutaneous fever (5) dermatostomatitis, and (6) mucosal respiratory syndrome.

The eponym, Stevens-Johnson syndrome, has been used since the appearance of the report in the American literature of 1922.

Symptoms

1. The initial symptoms are usually (a) malaise, (b) fever, (c) sore throat, and (d) cough. Typical manifestations appear several days later.
2. A vescular, papular, or bullous skin eruption with a predilection for the extensor surfaces of the arms and legs may be seen.
3. Changes in the mucous membranes. Vesicles or bullae in the mouth.
4. One or two days later these ulcerate and become covered with a thick white exudate. At times these ulcers are so numerous that the entire oral mucous membrane seems to be covered.
5. The ophthalmia most frequently will present as a simple catarrhal conjunctivitis. In some patients this process becomes purulent or pseudomembranous. Cases of permanent optic damage have been reported.

Complications

1. Involvement of the glans penis and urethra.
2. Pneumonia, usually of the virus type, clinically.
3. Systemic reaction, including fever and prostration shows a wide variation.
4. Some cases are extremely mild, not even requiring bed rest, while others are critically ill.

Diagnosis

1. In differential diagnosis the following must be ruled out: (1) Vincent's stomatitis, (2) drug sensitivity, (3) pemphigus, (4) urethritis, and (5) infectious stomatitis.
2. When all the features of the disease are present there are few other ailments with which it can be confused.
3. When only one or two of the signs appear it is difficult to avoid confusing with other disorders.
4. Up to the present the cause has not been determined.

Treatment

1. The use of both penicillin and sulfonamides seems helpful.
2. It is suggested that the use of these agents will probably decrease complications.
3. Otherwise only mild mouth washes and boric acid irrigation for the eyes seem to have been used.

Summary

1. It is felt that this disease is of importance to the naval service because of the possibility of serious sequelae.
2. It tends to occur with comparative frequency in groups living in close proximity.
3. Because of its protean manifestations the disorder may be seen initially by the following: (a) the dermatologist, for skin lesions, (b) the dentist, for the stomatitis, (c) by the urologist for the urethritis, (d) the ophthalmologist, for the conjunctivitis, or (e) by the internist.

Adapted from U.S. Nav. M. Bull. **49**:50-53 (January-February) 1949.

A Technique for MANDIBULAR IMPRESSION

SIDNEY S. JAFFE, D.D.S., Washington, D.C.

DIGEST

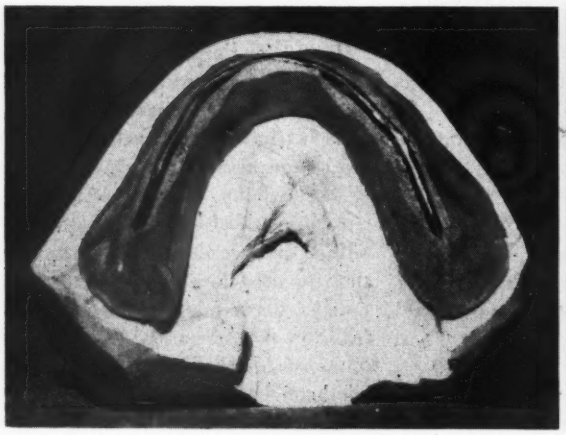
With the techniques previously used the author of this article occasionally encountered a case where it was almost impossible to keep a lower denture from displacement. With any mandibular technique the operator exerts a certain amount of pressure with the fingers while taking the impression. The touch varies among operators. Because the tray is extremely light in weight, a degree of pressure is absolutely necessary to hold it in place. The delicate peripheral muscles are thereby compressed, no matter how slight the pressure. Naturally the muscles that have been compressed will have a tendency to lift the denture, or to revert to their original shape. The method described here has completely overcome this fault.

THE UNDERLYING principle of the mandibular impression is that of equal distribution of force over the entire area without (a) impingement on the border or peripheral tissues, (b) compression of the ridge or any other area, or (c) distortion of flabby or loose tissue so frequently found in the edentulous mouth.

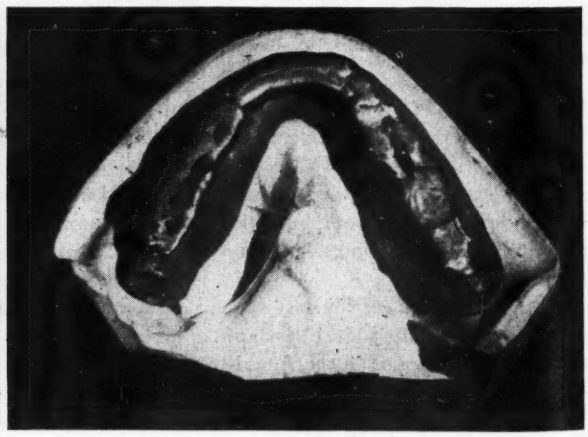
Functional Occlusion

An impression technique is of small value if functional occlusion has not been established. This requires that, (1) each cusp must glide in and out without cusp or inclined plane interference during the process of mastication, and (2) an impression material must reproduce faithfully and accurately every feature and

1. *Snap impression is taken in modeling compound and a plaster cast is poured.*



2. *A sheet of trubase is adapted to cast and trimmed to an arbitrary outline. It is reinforced with a heavy wire.*



3. *Replace trubase on plaster cast and dam with moldine leaving the ridge area exposed.*

detail of the area without distortion or displacement. The ideal impression material has not yet been found.

Basic Principle

It is agreed that overcompression in general must be avoided. To achieve this is often beyond the power of the average operator, particularly in the case of the so-called "floaters." The following technique insures a close approach to the ideal result.

Technique

1. A primary impression is taken in modeling compound and a plaster cast is poured (Fig. 1).

2. To the primary cast adapt a sheet of trubase from which all undercuts have been removed. Trim it to a tentative arbitrary outline.

3. Reinforce it with a heavy wire on the ridge, or fasten it with melted trubase (Fig. 2).

4. Carry it to the mouth and trim in the conventional manner.

5. Replace it on plaster cast and dam most of it with moldine—all except the ridge (Fig. 3).

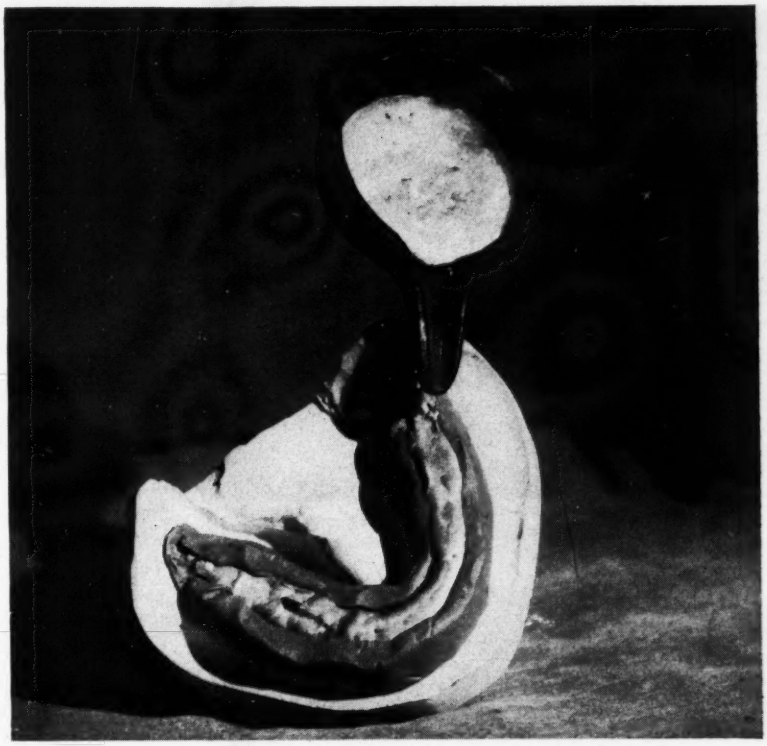
6. Over the ridge pour melted Melotte's metal which has been weighed previously so that it approximates the weight of the finished lower denture (Figs. 4 and 5).

7. The finished impression tray should approximate as closely as possible the weight of the finished denture. Any lower denture constructed of the same material as the finished denture, of about the same size, will be close enough to determine the weight.

8. It is not a matter for concern should the tissues lift the tray slightly when the tray is placed in the mouth —the impression material will take up the difference.

Materials—Plaster of paris can be used for the impression; other soft materials on the market are also quite suitable. A compound of plaster is preferred, such as truplastic or plastogum, as it is a little easier to work with and the expansion and contraction are reduced to a minimum.

Final Steps—1. Place in position in the mouth and remove the fingers completely.



4. ***Pour over ridge area Melotte's metal to the approximate weight of the average lower denture. The weight of the tray, which is the weight of a finished impression, will not lift easily.***

5. ***Finished impression.***

2. Instruct the patient to close the mouth slightly (about the position in repose or at rest) and not to move tongue or muscles until the material sets.

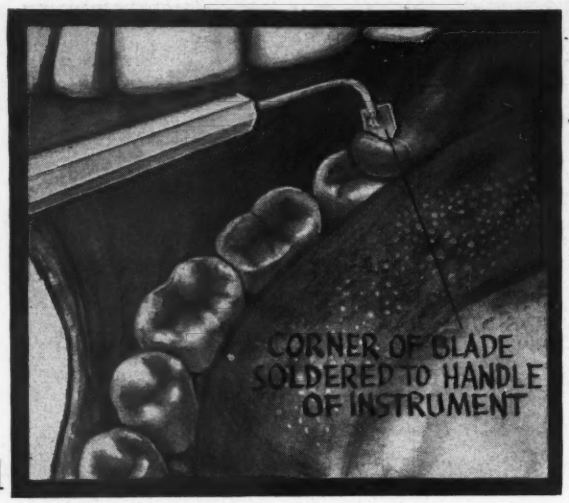
Conclusions

1. An impression has been obtained under the denture's own weight with the same compression on the ridge and the periphery that the denture will maintain when completed.

2. An important feature of this method is that the impression muscle-trims itself to the exact outlines that the patient will tolerate.

1314 18*th Street N.W.*

Clinical and Laborator

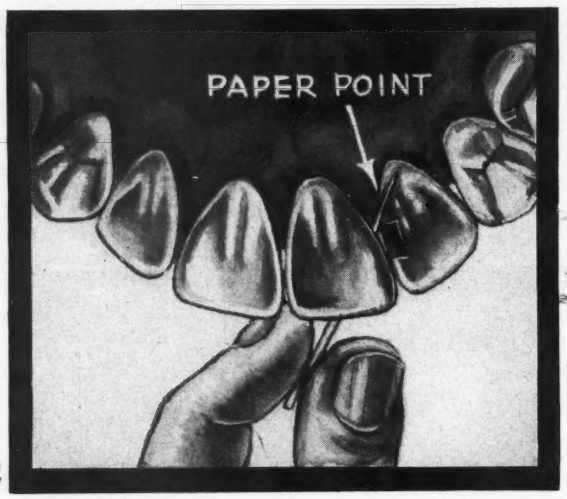


1

An Instrument to Excise Pericoronal Tissue

Walter H. Jacobs, D.D.S., New York

1. A square piece of safety razor blade is soldered to the shank of a broken instrument. The knife thus created is perfectly adapted for use in excising the flap of soft tissue overlying the lower third molar.

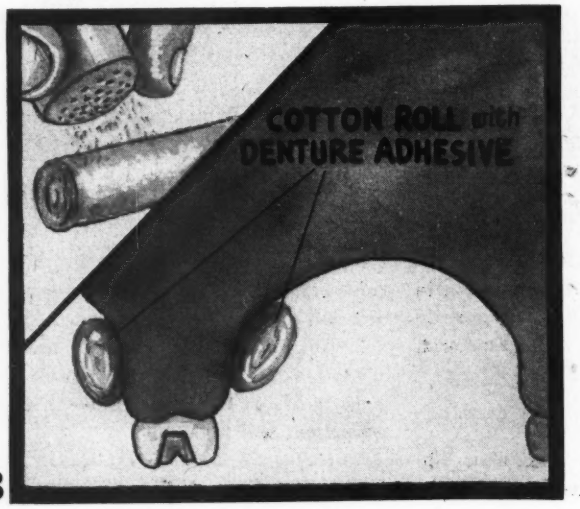


2

To Control Gingival Seepage

B. C. Godfrey, D.M.D., Rutland, Vermont

2. During the insertion of silicate restorations it is necessary to control seepage from the gingival tissues. This may be done by inserting a paper root canal point at the gingival margin as shown in the illustration.



3

Retention of Cotton Rolls

A.W. O'Hara, D.D.S., Kingston, Ontario

3. Cotton rolls may be retained in position by sprinkling them with a denture adhesive powder. The cotton rolls and the denture powder both absorb moisture and aid in keeping the operative area dry.

READERS *are Urged to Collect* $10.00

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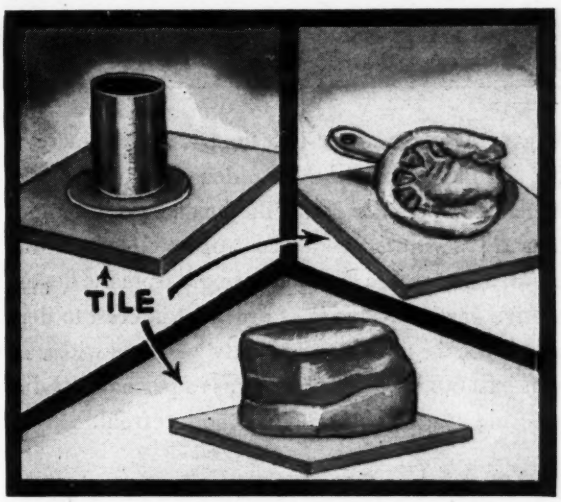
SUGGESTIONS . . .

The Use of Ceramic Tile in the Laboratory

H. H. Hicks, D.D.S., Bisbee, Arizona

4. Pieces of glazed ceramic tile four by four inches in dimension are useful in the laboratory. These pieces may be used when investing inlays, pouring casts, mounting cases on the articulator, and for many other laboratory procedures.

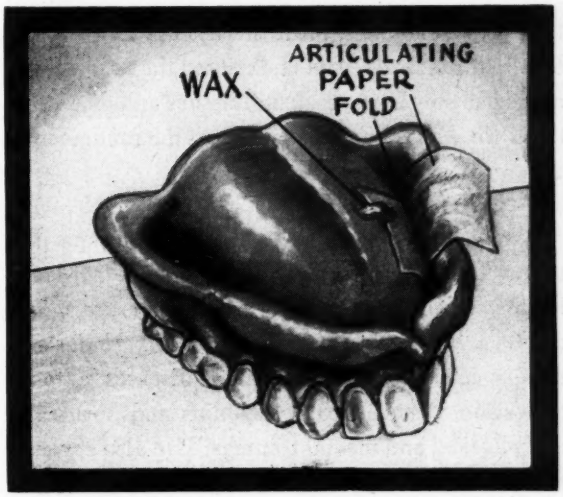


4

Registering Denture Sore Spots

Alexander Brewer, D.D.S., Bronx, N.Y.

5. Marking denture sore spots with an indelible pencil is often inaccurate. By fastening articulating paper to the denture base with sticky wax in the area of the sore spot a recording of the spot of compression is made on the denture base.

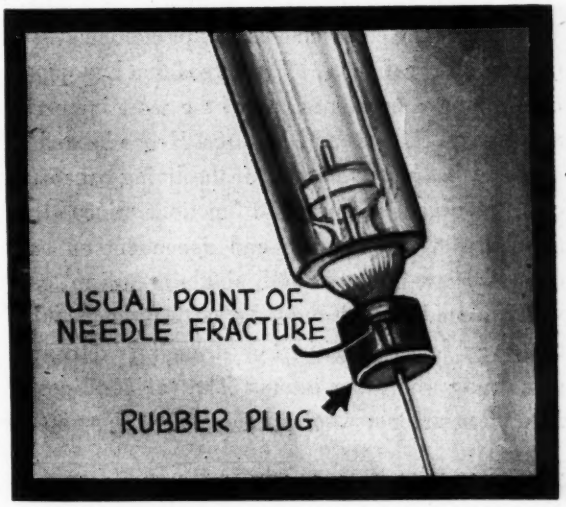


5

Preventing Needle Breakage

Rudolph D. Huber, D.D.S., New York

6. There is a tendency for the long needles used in mandibular injections to break at the hub. As a protective the rubber plug from an empty anesthetic tube is placed over the needle at the hub. Should the needle break, the rubber plug will prevent it from entering the soft tissue.



6

suitable illustrations; write a brief description of the technique involved; and jot down the advantages of the technique. This shouldn't take ten minutes of your time.

Turn to page 176 for a convenient form to use.

Send your ideas to: Clinical and Laboratory Suggestions Editor, DENTAL DIGEST, 708 Church Street, Evanston, Illinois.

The EDITOR'S Page

VITAL STATISTICS attest that the life span is increasing and that more and more older persons are being added to the population. With the decrease in infant mortality, with the better control of infectious diseases, more people live longer to die from the degenerative diseases. This is of practical interest to dentists. With the population heavily weighted with persons past 60, the dental problems of periodontal disease and of prosthesis come to the forefront.

There has grown in recent years a proper interest in gerontologic research and the clinical applications of these studies to the specialty of geriatrics. A few fleeting comments appear in the dental literature on geriodontics. More studies are indicated in this field. Before we can understand the processes of ageing as they apply to dental tissues and dental patients we should know something of the fundamental nature of senescence.

Korenchevsky[1] of the Oxford Gerontologic Research Unit, says emphatically that we do not know the *primary* causes of ageing although the *secondary* causes are somewhat better understood. Under secondary causes he lists "infectious diseases, auto-intoxication, deficiencies of vitamins and hormones, and physical and mental traumas." He also suggests the differentiation between physiologic ageing and pathologic senescence.

As a definition of ageing Korenchevsky quotes Warthin: "He constructs it on pathological and clinical observations . . . It is agreed that hypoplasia or atrophy of organs is one of the most important and typical changes and features. Hence he defines age as a 'major involution' of the living organism, of all its organs, tissues, and functions. Since all of them are correlated with and dependent on each other the involution of each single organism 'once well initiated, may through the weakening or loss of the given function initiate or strengthen retrogressive changes in other organs. The various lines of involution are not wholly independent, but, in the general economy of the organism, aid and supplement one another until various vicious circles and correlations of retrogression are produced.' "

These should be significant words to dentists. If periodontal disease, for example, is a degenerative or atrophic change it may reflect an over-all involutional process. It may be a local sign of general retrogression. The loss of tissue and of function that comes with periodontal disease may be the spark that "irritates or strengthens retrogressive changes in other organs." Our knowledge of these correlations is nil.

If hypoplasia and atrophic changes mean changes in weight and in the linear measurements of organs and cells, that is important to denture prosthesis. It is conceivable that with the increase in the number of elderly persons in the population our denture problems will become greater. We know very little of the biology of tissue atrophy and bone resorption under denture bases. We know even less of the neuro-muscular mechanisms at work in these cases. When cerebral accidents, either by hemorrhage or thrombosis, befall people we know that the finely adjusted neuro-muscular balances are disturbed. Difficulties in speech, in chewing, in swallowing, in motor functions, are common. The delicate reflex mechanism of chewing is often abolished. These people can no longer tolerate or manipulate their dentures. It isn't a matter of making new dentures, using some new technique or gadget. That will do no good. If neuro-muscular function returns, as it often does, the rejected denture may then be used. If function does not return to the higher cerebral centers no amount of manipulation of the peripheral dental tissues will do good.

An opportunity is open for a piece of enterprising research on the application of basic gerontology to the dental problem. We are going to have more older people in the population. Their economic and social interests have been recognized by the Social Security Agencies. It is our responsibility to recognize their peculiar biologic needs and problems.

[1]Korenchevsky, V., The Problem of Ageing. Basic Difficulties of Research, Brit. M. J. (January 8) 1949.

MEDICINE and the Biologic Sciences

Pyribenzamine as a Topical Anesthetic

It has been noted that the pharmacologic properties of Tripelennamine hydrochloride (Pyribenzamine hydrochloride N.N.R.) are such as to make this drug a valuable adjunctive measure in the relief of pruritus or discomfort in many conditions other than those of an allergic nature.

The ability of the drug to produce local anesthesia was observed when it was placed on the cornea of a rabbit. As a result, clinical tests were made to test its efficiency as a topical anesthetic for anesthetization of the oral and pharyngeal mucosa.

Local application appears to anesthetize the oral and pharyngeal mucosa sufficiently to permit gastroscopy. The effect is obtained by having patients gargle and rinse the mouth repeatedly with a 1 per cent aqueous solution of pyribenzamine. Two portions of 10 cubic centimeters each are used. This procedure produces sufficient anesthesia to allow a full and complete examination of the stomach without pharyngeal discomfort or excessive gagging.

In patients with very sensitive gag reflexes the drug is able to produce anesthesia enough to control gagging in many procedures. This should be of interest to the dentist in taking impressions for persons with highly sensitive gag reflexes.

Patients with painful aphthous stomatitis have used the drug to enable them to eat comfortably. Pain is usually severe in these patients and eating is frequently avoided because of the pain. A brief mouth rinse with a 1 per cent aqueous solution 15 minutes prior to eating gives relief and enables food to be ingested. Thus the drug aids in controlling the pain and indirectly makes possible a better nutrition to aid the systemic resistance.

Immediate relief of pain from a carious tooth has been secured by placing a small amount of the drug (in powder form) in the cavity.

Although the drug is very bitter, it anesthetizes so quickly that few people complain. The production of some excess salivation has been noted. Not enough, however, to interfere with examination or gastroscopic procedures.

Anesthesia is produced rapidly with either a 1 or a 1½ per cent strength in an aqueous solution. The anesthesia produced lasts from 45 minutes to 90 minutes.

At the present time the drug appears to compare favorably with other topical anesthetics. And there is evidence that it may prove safer than some of those more generally used.

Moseley, Vince: The Use of Tripelennamine Hydrochloride (Pyribenzamine) as a Topical Anesthetic, Am. J. Diges. Dis. **15**:410-411 *(December)* 1948.

Injuries From Atomic Explosions

There have been only 5 major atomic explosions about which data have been published. Yet from these explosions an entirely new concept of extent of injuries is envisioned.

In general, the effects of the blasts are considered from the standpoint of distance from the center. There are three concentric circles varying in depth according to the intensity of the blast. These are:

1. The small center circle. Here there are practically no survivors. The people are virtually killed three times over—(1) by the direct blast or by being struck with flying objects, by being crushed in collapsed buildings, by being flung against buildings, walls, trees, etc.; (2) by burns, direct burns from the heat of the explosion or by being caught in buildings set afire by the heat of the explosion; (3) by radiation.

2. The middle ring. Here there will be (1) fewer blast injuries; (2) the flash burns will be just as numerous but mostly nonfatal although deep enough to produce a great deal of keloid scarring a few months later; (3) there will be thousands of deaths from radiation as well as thousands of nonfatal radiation victims.

3. The outer ring. The injuries in this area will be limited almost entirely to nonfatal flash burns. Some mild flash burns will occur at distances even beyond the two-mile zone.

The temperature at the center has been estimated at a million degrees centigrade. At two miles the Japanese physicists and chemists estimated the temperature to be from 3,000 to 9,000 degrees centigrade.

The complete pathology of ionizing radiation is not yet fully understood. Underwater blasts are much more lethal because the victims come into contact with objects sprayed with water containing the fission products of the explosives. In the air these products rise quickly in the atomic cloud and are dispersed in the stratosphere unless a heavy rainfall catches the atomic cloud before dispersal. In such an instance a rain of death drops in the form of intensely radioactive fission products.

The chief trauma from radiation is in the hematopoietic and lymphatic systems. Aside from those dying in the first day or two, the highest death rates will be seen in the third and fourth week.

Casualties of all types will be found in an area of 8 to 10 square miles after an air blast and about 15 square miles after an underwater blast.

Among the Japanese the burns were followed by keloid scars in a large percentage of the victims. The reason is not known. It is also not known whether Americans would suffer to the same extent. The general treatment is quite unsatisfactory.

Radiation has produced sterility of varying lengths of time in exposed persons. The male is affected by a lower dose than the female. Data indicate that the sterility is temporary in most cases.

The only good prevention is to be at a distance of at least 5 miles from the explosion. This distance undoubtedly must be increased with bombs now being developed.

Parsons, R. P.: Trauma Resulting from Atomic Explosions, Am. J. Surg. **76**:559-562 (*November*) 1948.
Brues, Austin M.: Nature of Trauma in Atomic Warfare, Am. J. Surg. **76**:563-566 (*November*) 1948.

Carcinoma of the Breast

Cancer of the breast as a cause of death is being recorded in increasing numbers. This is true especially in England. The rise in incidence is a real one and not one due to better methods of diagnosis or greater accuracy in statistics.

The increase is due chiefly to the changes in the age structure of the population. There is an increase in the number of persons living at ages of 50 to 75 years. In general it can be stated that cancer of the breast is on the increase when the birth rate is falling and when lactation does not take place. Smaller families, failure of lactation, and longevity contribute their share in the increase of the disease.

In comparison with all other sites of cancer, with the exception of cancer of the skin, the breast is the most favorable site. The mean duration for the expectation of life in untreated patients is 39.3 months. Even under the best of conditions and treatment there is an average loss of 5 years.

Carcinoma of the breast in the very young (under 25 years of age) is quite lethal. In the third and fourth decade it is no more lethal than in the more advanced years of life. In fact there is some evidence that in the very old (over 75 years of age) the disease does not materially shorten life.

Pregnancy and lactation are factors which seriously affect prognosis. Rate of growth of mammary cancer during pregnancy and lactation is rapid and termination of pregnancy leads to temporary regression. The most virulent type of all, the acute cancer, is seen during lactation. The virulence of the disease is evidenced by the early and widespread lymph node invasion.

The most useful classification of these cancers is one which has to do with the stage of development as follows: Stage One includes tumors of the breast only. Stage Two includes tumors of the breast, axillary glands, and cutaneous changes. Stage Three includes tumors of the breast and supraclavicular glands, or contralateral axillary glands, or fixation to the pectoral fascia. Stage Four involves skeletal or visceral metastasis.

Stages One and Two are anatomically within the area covered by radical mastectomy. Stage Three is beyond surgical excision and Stage Four demands only palliative measures.

Treatment consists of radical mastectomy, radiation, and a combination of both. Of surgery, radical mastectomy is considered the method of choice. The operative mortality is low and the morbidity is slight. However, it must always be remembered that surgical treatment in unsuitable cases is a grave error in judgment.

Radiotherapy has a definite place in treatment. It is used to excellent advantage preoperatively and postoperatively in combination with surgery. In third stage lesions radiotherapy is the method of choice without question. Some of these cases regress completely and others are palliated to such an extent that the patient's general health is not seriously affected nor are these patients inconvenienced to a great extent.

Cade, Sir Stanford: Carcinoma of the Breast, J.A.M.A. **138**:1083-1087 (*December* 11) 1948.

The Climacteric in Women

The climacteric is an orderly phase of the physiologic phenomenon of aging in women. The cessation of menstruation, due to ovarian inactivity, is but a part of the process. This period in women, coming usually in the fifth decade, may be accompanied by endocrine and vasomotor instability.

The process is a self-limiting one. However, the intensity, nature, and duration of its symptoms vary with the individual. Both patients and professional men should consider it a normal, orderly, and progressive event and not a pathologic process.

The normality of the climacteric cannot be stressed too much. It makes its appearance usually in the fifth decade of the woman's life. The salient feature is a progressive hypoovarianism. This failure of ovarian function produces physiologic changes which give rise to few symptoms in some or a variety of symptoms in others.

Cessation of menstruation is a prominent result. Not all healthy women cease menstruating in an identical manner. Usually there is a progressive diminution of the flow or a lengthening of the intermenstrual interval, over a variable period of months or years until menses finally cease.

Hot flushes, which may be mild and occur only infrequently or may be severe and occur almost continuously, are characteristic. These attacks may be accompanied by perspiration and weakness. Retrogressive changes in the uterus and ovaries and external genitalia appear. The breasts show signs of atrophy.

Occasionally one sees paraesthesia, hyperesthesia, headaches and vertigo, and obesity. These symptoms are not solely due to hormonal changes or estrogen deprivation, but are partly the result of the natural process of ageing.

It can be estimated that the average duration of the flushes is two years. Ninety per cent of women are able to carry on their daily routine without interruption. A patient with a normal menstrual history tends to have few symptoms at the menopause. But a patient with a history of severe dysmenorrhea is more apt to have a severe menopause.

The climacteric is a critical period in a woman's life. It is a time when she finds herself, or rather believes that she is entering her declining years. This patient must be aided to become adjusted to her new state. Many women fear that, with the onset of the menopause, they will become less attractive sexually, and that their sex life will be disturbed. Others fear the process of ageing and the possibility of mental deterioration occurring at this time.

The menopausal patient believes that the verdict of senescence has been pronounced upon her. With this verdict many anxieties trouble her. This is true with single women as well as married women. In advising these women one must first recognize their mental disturbances and then their physiologic problems.

For some persons mild sedatives are indicated in alleviating most of the symptoms. Only when the vasomotor symptoms cannot be controlled by sedatives and are severe enough to become a problem which interfere with the normal activities of the patient should estrogens be prescribed. The smallest dose that will control the symptoms should be administered with rest periods between courses of therapy. The oral route is the method of choice because of its convenience and flexibility.

Farell, David M.: Dangers in the Management of the Climacteric, The M. Clin. North America **32**:1523-1532 (*November*) 1948.

Penicillin in Syphilis Treatment

Penicillin has been used 4 years as a treatment for syphilis and has proved to be the most effective weapon against the disease.

The most effective preparation against syphilis of any type is crystalline penicillin G. For best results 50,000 to 100,000 units should be dissolved in 1 cubic centimeter of sterile water or isotonic sodium chloride. It should then be injected intramuscularly in doses of 20,000 to 100,000 units every two or three hours. Treatment should continue for at least seven and one-half days (60) doses.

Some cases of neurosyphilis may require a total dose of 10 to 20 million units over a period of 12 to 20 days. And this is usually supported by induced malarial fever.

Eighteen types of syphilis have been treated with penicillin. The results in nine are good. These include: (1) early, (2) latent, (3) benign late, (4) iritis, (5) congenital, (6) asymptomatic neurosyphilis, (7) symptomatic neurosyphilis, (8) acute syphilitic meningitis, and (9) syphilitic nerve deafness.

The results can be classified as follows:

1. In dementia paralytics the results are moderately good. 2. The results in cardiovascular and optic atrophy are undertermined. 3. In keratitis, results are uncertain. 4. There are fair results in diffuse meningo-syphilis. 5. Results in epilepsy are questionable. 6. In the prevention of prenatal syphilis the results are excellent.

With the treatment of syphilis by penicillin the drug should not be administered orally, or by the intrathecal route. Penicillin is toxic when administered intrathecally.

Crystalline penicillin G in peanut oil and beeswax may be used. This is recommended in doses of 600,000 units intramuscularly. The total dose is usually 6,000,000 units. Serious reactions to amorphous or purified penicillin are rare and include no deaths.

Penicillin treatment for gonorrhea may delay or suppress the lesions of syphilis. Auxiliary treatment with arsenic, bismuth, or fever should not be used with penicillin during the first course of treatment. They may be helpful and necessary, however, in the treatment of relapses.

Penicillin is nearly 100 per cent effective in preventing prenatal syphilis. If the infant is seronegative and otherwise normal at four months of age it may be dismissed as nonsyphilitic.

Authorities in this field recommend that those treated for early syphilis of infantile congenital syphilis or pregnant women with syphilis should return once a month for a careful examination including quantitatively titered blood serologic tests. Seroresistance after penicillin is the rule in latent syphilis as it is after all other forms of treatment.

Medical Review, An Evaluation of Penicillin for Syphilis Treatment, Hospitals **22**:83 (*December*) 1948.

Diseases of the Skin

In the treatment of diseases of the skin the drugs, benadryl and pyribenzamine, are being used as adjuncts to good advantage. These drugs are used principally as histamine antagonists. However, they are being used increasingly for other conditions, especially those with a possible allergic background.

Neither benadryl nor pyribenzamine is a *cure* for anything. They give only symptomatic relief. Urticaria, erythema multiformi, penicillin reactions, and dermatitis medicamentosa will all clear in a few days or weeks with no treatment. However, the antihistamine drugs will relieve the symptoms and shorten the time of reaction.

With other types of dermatoses such as pruritis ani and vulvae, dermatitis venenata, poison oak dermatitis and the like, the pruritis is relieved, reducing scratching and in-

CLINICAL AND LABORATORY SUGGESTIONS

(*See pages* 170 *and* 171)

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somnia. This gives local therapy a better chance and the dermatitis resolves sooner.

In adults each drug is given orally. The dose of pyribenzamine is usually 50 milligrams four times a day. The dose of benadryl is 50 milligrams three times a day. It is necessary to reduce or increase these dosages in some patients.

The dosages in children are computed according to weight; usually 2 milligrams per pound. Benadryl has an advantage that for children it can be used in an elixir containing 10 milligrams per teaspoonful. Pyribenzamine cannot be used in an elixir because of the marked anesthetic effect on the oral mucous membranes and the tongue.

The main side reactions to benadryl are drowsiness and lassitude which occur in 50 to 60 per cent of patients. Headache occurs in 5 to 10 per cent; nausea in 4 to 5 per cent; excitement in 2 to 3 per cent; urinary frequency, reduction of potency and diplopia in about 1 to 2 per cent.

The main side reactions to pyribenzamine are also drowsiness and lassitude but they are much less severe than those induced by benadryl These symptoms occur in 10 to 12 per cent of the patients. Side reactions such as headache, nausea, excitement, urinary frequency, reduction of potency and diplopia develop in about the same percentage as with benadryl.

Both pyribenzamine and benadryl have a definite place in dermatologic therapeutics. Pyribenzamine has a wider range of use than benadryl because of the lesser side reactions. In some cases, benadryl has a better effect because of the sedative action. Another distinct advantage of pyribenzamine is the antipruritic factor which is much greater than with benadryl.

In most skin diseases it is wise to carry on other treatment along with the drugs. This consists of wet compresses, superficial x-ray therapy, bland shake lotions and the like.

Morrow, Grant: Benadryl and Pyribenzamine in the Treatment of Diseases of the Skin, California Med. **69**:22-25 (*July*) 1948.

The Hospital Medical Record

The primary responsibility for the content of the hospital medical record rests with the professional man in charge of the case. Today, hospitals provide assistance for the doctor in the compilation of the medical record.

The scientific value of a medical record is in direct proportion to the care with which it has been compiled. The medical record is kept primarily for the benefit of the patient in any later illness. If that record is lacking in detail the patient may suffer.

Also the medical record serves as a protection for the hospital and the professional man in case of medicolegal action. If the medical record is inaccurate or incomplete the hospital or doctor or both may suffer.

Medicine and the Biologic Sciences

Medical records are of value in medical research. The medical records librarian may record only that data given her. Therefore, if diagnoses are incorrect or incomplete, her indexes will also be incorrect and incomplete with the result that research is handicapped. Statistical data and reports can be only as correct as the information upon which they are based.

Today the intern is usually held responsible for recording the history and the report of the physical examination of the patient and for an account of the progress of the case. The nurses are responsible for the records of daily care given to the patient and for the graphic record. It is the duty of the surgical stenographer to obtain from the surgeon a complete and adequate report of the findings and procedures used in surgery.

Each department is held responsible for its own reports. The laboratory is responsible for the reports of urinalysis, blood counts, etc. The department of roentgenology is responsible for x-ray reports as are other departments for their particular fields of work.

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the record. He must write the orders for treatment on the order sheet at the time the orders are given. He must record the provisional and final diagnosis and condition of the patient on discharge. It is necessary that he check the record to ascertain if it is accurate and adequate and then sign the summary sheet, thus putting his approval on the record as a whole.

If he is the surgeon as well as the attending doctor he must also sign the report of the operation. If he is not the surgeon he must see that the report of the operation has been signed by the surgeon. In this way the attending man gives final approval for all information contained in the medical report.

Huffman, Edna K.: Manual for Medical Records Librarians, Chicago, Physicians' Record Company, 1941, *pages* 50-51.

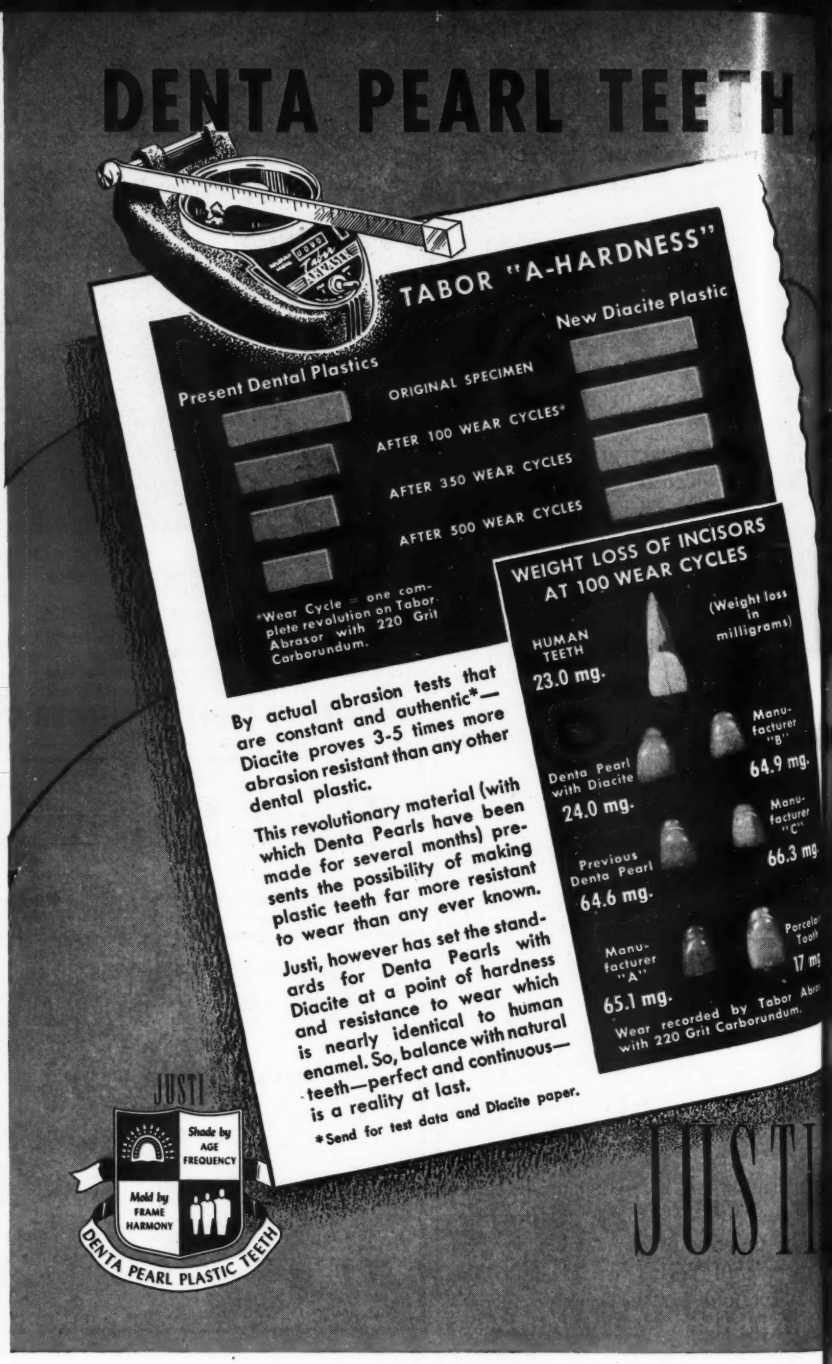
Contra-Angles

Doctor Red Tape Goes on the Government Pay Roll

IN THE DAYS before compulsory health insurance dentists and physicians spent their time treating patients and performing a minimum of paper work. With the coming of a federal health program the pen became mightier than penicillin and carbon paper became as necessary as an explorer or a stethoscope. Since Doctor Red Tape joined the federal payrollers he hasn't had time to treat people, he has been too busy shuffling papers.

The dentist or the physician seldom has the disposition to be an accountant or a clerk. If he had such skills or interests he would not have embraced the healing professions. Under compulsory health insurance he became a slave to "six carbon copies" of everything and entered the valley of nervous tension from reading the federal prose, "subtract line six from line 18, multiply by 68 per cent of the population of Afghanistan, add the square root of the square miles in Indiana."

I. M. Red Tape, D.D.S., and his colleagues have less than an hour a year to spend in the dental treatment of each person in the population. This startling figure is determined by multiplying the 70,000 dentists in active practice by the forty-hour-week of government workers by the forty-eight-week year of the bureaucrats. The total is 134,400,000 hours available each year for dental care. The Bureau of the Census estimated that at the end of 1949 the population of the United States will be 150,000,000 persons. This means that there is less than one hour of dental care each year for each person. Not everybody will want even an hour a year of dentist's time. The denture wearers will not need it and many who need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it will not want it, although the number who will flock for free services will be many. The demand for prophylaxes, x-rays, new dentures, and the things that "do not hurt" will be enormous.

Doctor Red Tape gave up the independence and enterprise of personal practice to join the robots. He didn't exactly want to, but he was so indifferent to the whole thing that the Wagner-Murray-Dingell bill passed and became a law before he stirred from his lethargy. Now he's screaming that no one told him about the danger and that it all crept up on him by surprise. This wail despite the fact that for 15 years the dental press has been carrying stories on health insurance. Not until last November did Doctor Red Tape and his colleagues begin to realize that advocates of compulsory health insurance meant business.

Doctor Red Tape is reaping the harvest of his indifference and is tangled in a scheme (and I quote from the Wagner-Murray-Dingell bill) that consists of the following: A National Health Insurance Board of five members that is advised by a National Advisory Council of 16 members which forms its policies for the state plans which are operated at the "local health area level." (Are you confused? So are we). Now the local health area level represents an activity that is supervised by a local administrator who is playing ball with a local committee of dentists and physicians. Everybody gets paid except the local professional committee which has the simple task of "maintaining the customary freedom and responsibility of practitioners in the exercise of professional judgment as to the care of patients and in the solution of technical problems concerning the participation of professional personnel and to advise with regard to matters of professional practice or conduct." Simple, what? So Doctor Red Tape and his medical colleague, Ivan Bureaucracy, M.D., have a local committee to put up with

which consists of a local officer who reports to a state level officer who is under the thumb of the National Advisory Council which is an agency of the National Health Insurance Board. The Board itself, of course, is under the direction and supervision of the Federal Security Administration. This is what is called in military parlance "the chain of command." It's not much help to the fellow with the toothache or cramps in his belly. Doctors Red Tape and Bureaucracy have found that with all this organization there are a good many investigators, snoopers, agents, and pay-rollers who are prying into professional affairs.

If some patient doesn't like Doctor Red Tape's inlay or his colleague Doctor Bureaucracy's appendectomy scar he may file a complaint with the local committee, appeal to the state agency, shift into the state courts, and end up in Washington, if he wishes, before the imposing figures of the United States Supreme Court. That is all provided for in the Wagner-Murray-Dingell bill. Doctors Red Tape and Bureaucracy may do the same thing if that is any consolation. The participating practitioners are entitled to hearings if they don't like the way their patients behave.

The Wagner-Murray-Dingell bill also provides an escape for the dentist or physician who feels that he has been trapped in a community. If he doesn't like his present location and if he isn't getting along too well with his colleagues who set the standard of professional conduct he can move to a rural area. That is likewise provided in the Wagner-Murray-Dingell bill. The restless one, if he moves to an area where there are not enough dentists or physicians, will be guaranteed a minimum income, his traveling expenses will be paid and he can arrange a government loan if he wishes. For a real subsidy try the great open spaces for practice. It's all arranged by the Great White Father through the Wagner-Murray-Dingell bill.

Doctors Red Tape and Bureaucracy are pretty sore at everybody over their plight under a federalized health project. They are damning the American Medical Association, the American Dental Association, the trade unions, the farmers, Mr. Truman, the Congress, but they haven't looked in the mirror themselves. In the mirror they will see the reflection of the people who made compulsory health insurance a reality. They will see the image of themselves and thousands of their colleagues who are too busy to attend dental and medical society meetings and to read the professional literature. It is too bad that they have been so busy when they could have done something about it. Now it's too late. They will not have another opportunity.

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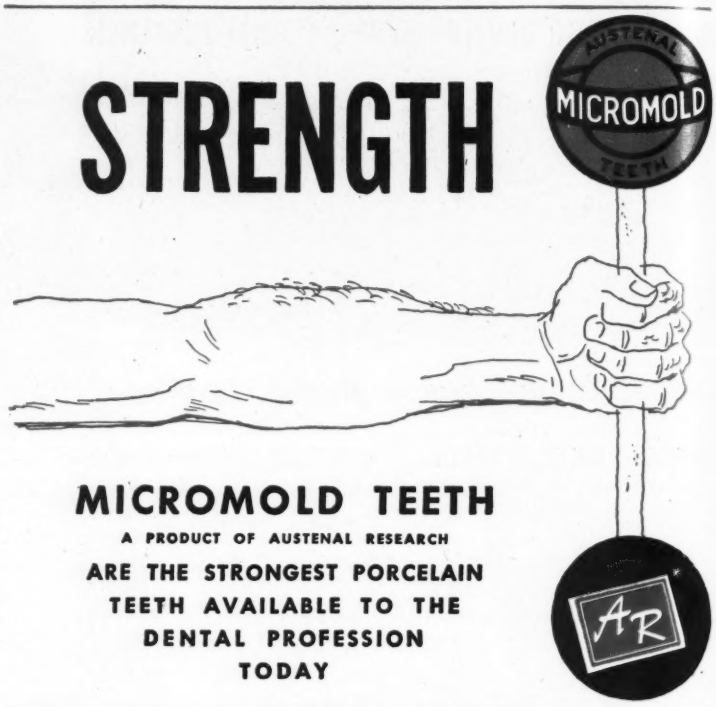

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tachment and tends to identify himself with them and with the traits by which they attained greater heights than his.

"On the other hand, he looks to his subordinates in an essentially impersonal way, seeing them as 'doers of work' rather than as people. This does not mean that he is cold and treats them casually. In fact he tends to be rather sympathetic with their problems. But he still treats them impersonally with no real or deep interest in them as persons. It is almost as though he viewed his subordinates as representatives of things he has left behind, both factually and emotionally. The only direction of his emotional energy that is real to him is upward and toward the symbols of that upward interest, his superiors."

This is the philosophy of fawning, the philosophy of stepping on the necks of the people under you and scratching the shoulder blades of the people in the next echelon. It's part of the master-slave-superman myth that should be exploded.

The editor of the sensible publication, *Sales Management*, says that this phoney philosophy jolted him too. So he read it to one of the nation's important business executives who replied: "The way a man acts toward others—above and beneath—comes back to him. I'd hate to have *that* kind of action come back to me! In this company we would not countenance it. It would tend to de-humanize us and damage our company spirit. It would rob executives of their quality of leadership of men."

Sometimes dentists take a course in salesmanship and fall victims to the hot air of supersalesmanship. The worst thing that can ever happen to a dentist is for him to lose sight of the fact that he is dealing with human beings under the stresses of fear, anxiety, and pain. The professional attitude of the healer is much more important than the glib tongue of the salesman.—E.J.R.

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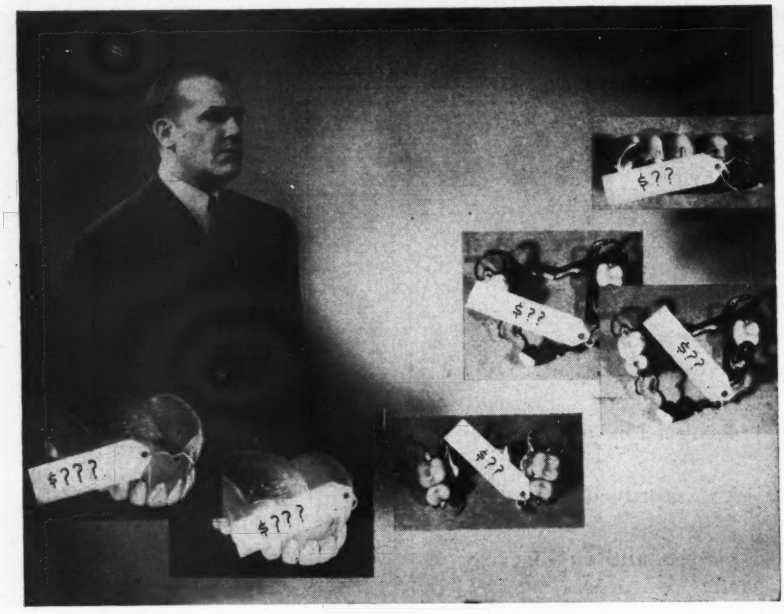

A Dentist Answers the Magazine Critics

If any of your patients have mentioned the article, "What Should Your Dentist Charge?" that appeared in a recent issue of one of the national magazines, you may want to suggest that they read Doctor Newman D. Winkler's reply to that article in this issue of Oral Hygiene. Surely you will enjoy reading it yourself. It says what you would like to say.

★ ★ ★

"Are State Boards Competent and Impartial?" asks Doctor George A. Swediman . . . and answers by quoting one example after another of cases in which the decision of a state board has been open to question. This is a subject of major importance to every dentist who would like to practice in another state, and—because of its ethical aspect—to every member of the dental profession.

★ ★ ★

"Are You Living Off Your Reserves?" . . . Harold J. Ashe points out that dentists are sometimes tempted to consider depreciation a sort of mumbo-jumbo term that comes in handy at income tax time but that can be disregarded when spending the yearly income. His article reminds the dentist that sound business principles are the basis of every financially successful dental practice.

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"Blooming Hobby," is what Seymour E. Francis calls Doctor Oscar L. Gabriel's profitable venture in carnation culture. If you have ever wanted to try your hand at raising a few flowers or at experimenting in creating hybrid varieties, Doctor Gabriel is the man who can tell you how to go about it.

★ ★ ★

"Air Conditioning is a Good Investment," say 99% of the dentists who have installed air conditioning equipment in their offices. If you are dreading the summer months because your office will be uncomfortably hot, perhaps you will want to profit by their experience.

★ ★ ★

"I AM a Cut-Throat Dentist," admits Doctor Robert L. Guedel—and argues his point of view as opposed to that of Doctor Harry C. Peake whose article, "Cut Fees Mean Cut Throats," appeared in the January issue.

Tooth Decay in Relation to Diet and General Health

(*Continued from page* 162)

Location of Caries in Mouth—The upper incisor and cuspid teeth were more frequently carious than the lower. In the molars 5.4 per cent more lower teeth were carious than upper. The cleansing action of the tongue constantly rubbing against the lower incisors, less against the cuspids, and not at all on the molars may be a factor to account for the differences. This may also account for the more frequent caries of the buccal surface than the labial.

General Health

The health of the Hawaiian children has improved but their teeth are still poor. A comparison of the food eaten by children with poor teeth and that eaten by children with excellent teeth shows that considerable more sweets and cereals were eaten by those with poor teeth. In the intake reports sometimes from one to three bottles of "cola" were included per day. Recent studies on animals have shown that the addition of acid to sugar greatly increases the damaging effect on the enamel. A small amount of fluorine reduced this activity. Although a general increase in fruits and vegetables on the plantation diets and a decrease in rice helped the general well-being the effect on caries was negligible.

Fluorine and Oxalates

1. Water in Hawaii is low in fluorine.

2. It is known that seafoods are high in fluorine.

3. The oxalates present in taro and absent in rice give a form of surface protection that apparently provides as much caries resistance as fluorine.

4. The value in these two factors in the role of prevention of caries may be as important as the previously mentioned acid-base factor.

Aciduric Bacilli

According to Enright "the only micro-organism . . . that can tolerate

(*Continued on page* 186)

Yes, the *tenth* reprinting of *"Visual Education in Dentistry"* is ready for you. The total sale of the previous editions is now 90,000; isn't this proof in itself of the value of this series of charts? Any practitioner can use the complete booklet in an ethical manner in his patient-education program. *It portrays vividly the value of periodic dental treatment and the danger of neglect.* The charts were originally designed to explain dentistry to the dental patients—they do just that! No other series has been accepted and used so widely in dental practices.

Here are a few typical comments taken from letters we receive almost daily: "I receive Dental Digest and your 'Visual Education in Dentistry' is a favorite 'show' book of mine"; "I find your 'Visual Education in Dentistry' most valuable. Enclosed find $2.00 for two more copies"; "My copy of 'Visual Education in Dentistry' is well used in the waiting room and also at the chair-side for patient education. The charts are useful in explaining various aspects of dentistry to any patient or group"; "Will you please send me your booklet, 'Visual Education in Dentistry.' The one I have is well worn from use."

Space limitations make further quotations from letters impractical, but we feel that the above few exemplify the high regard of the dental profession for the booklet. It will merit your high regard too once you have had a copy only a few days.

WE REPEAT, the tenth reprinting is a duplicate of the previous booklet with the exception of the one additional four page two-color chart entitled "The Dangers of Pyorrhea." However, this one chart alone will be of sufficient value to any practitioner who has purchased the previous reprinting, to warrant another investment now. Why not order two copies—one for use at the chair and the other for your reception room? A better investment at small cost could not be made.

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(*Continued from page* 182)

and produce additional acid in an environment below pH 5 . . . is a lactobacillus . . . Its final pH ranges from 3.6 to 4.8." Such acidity readily dissolves enamel.

Many observers have noted that lowering the intake of carbohydrates lowers the count and decreases caries. But the Hawaiians who were taking 50 to 80 per cent of their calories in the form of a soft sticky carbohydrate showed pronounced immunity to caries. Perhaps the acid-base values are important in relation to caries. This evidence suggests that the term "carbohydrates" has been too loosely used in dental literature.

Comments

1. Reported observations in Hawaii suggest that other factors than the acid-base balance or vitamin A may account for the striking difference in the caries in various groups of children.

2. Heredity does not seem to play an important role in this condition.

3. It did not seem to be climate as Hawaiians had excellent teeth and poor teeth, Orientals extremely bad teeth, and Caucasians fair teeth.

4. The studies also suggest that carbohydrates per se were not the causative factor.

5. It was not a vitamin D factor as both Orientals and Polynesians were exposed to 7½ hours of sunshine daily.

6. Fluorine may be a factor. Hawaiians, on their ancient diets, consume much seafood which is high in fluorine. They also eat much taro and poi, high in oxalate, a possible preventive of caries.

7. It would seem that something more than fluorine is needed to attain the perfection of the Hawaiian and Filipino teeth and something besides the lack of fluorine is necessary to account for the extremely carious teeth of the Japanese.

8. To correct caries by diet, the change must be quantitative or include the optimum of a protective factor.

9. The cause of caries is not yet solved but the quest is narrowing to fewer variables.

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Summary

1. Conditions which produce good health were found in connection with severe caries and poor health was associated with excellent teeth.

2. Heavy carbohydrate eaters (Polynesians on taro) had excellent teeth, and heavy carbohydrate eaters (Orientals on rice) had extremely poor teeth.

3. Observations in Hawaii tend to verify the role of aciduric bacteria as an index of caries immunity.

4. Oxalates and fluorides as well as the alkaline residue food values in the Hawaiian diet might account for caries resistance in certain groups.

5. These factors are more important in preventing caries than climate, heredity, cleanliness of the teeth, or specific food factors, including sugar.

6. The right food for the teeth is not necessarily the right food for good general health.

Adapted from J.A.M.A., **137**:832-838 (November) 1948.

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Bleeding Gums

Case History

A woman aged 36 has had slightly bleeding gums for years. Examination revealed the following: 1. She has taken good care of her teeth.

2. Has had a well-balanced diet with plenty of fruit and vegetables.

3. Basal metabolism and blood chemistry tests are normal.

4. She does have some malocclusion.

5. She has been told that she has deep pocket formation around all her teeth, the result of pyorrhea.

6. The extraction of the most severely involved teeth has been advised although periodontists differ as to how many teeth should be removed.

7. Other dentists are skeptical of the results of these measures.

Query

The patient is particularly concerned about the cause of the gum disturbance because her daughter, aged 9, who has been carefully watched as to mouth hygiene, diet, vitamin intake, has recently shown evidence of the same condition. Is such a tendency inherited?

Answer

The causes of periodontal lesions may be classified in general in four categories: 1. Dysfunctional. 2. Irritative. 3. Systemic or idiopathic. 4. Combination of any or all of them.

Under these headings may be grouped many individual factors. The principle ones are: 1. Traumatagenic occlusion. 2. Poor hygiene. 3. Dietary deficiency. 4. Poor restorative dentistry. 5. A systemic causation.

Successful therapy will depend upon accurate diagnosis of the etiologic factors.

1. All the teeth and their supporting structures must be placed in a state of equilibrium in which no tooth or its periodontium is subjected to stresses beyond its physiologic limits during normal masticatory functions.

2. The eradication of traumatagenic occlusion is of prime importance.

3. A program must be carried out to bring about the remission of all agencies contributing to inflammatory processes.

4. Those conditions which might adversely alter the body mechanism should be checked. Failure to recognize some one active causative process may be sufficient to retard or completely forestall a satisfactory prognosis.

The brief history of the case would suggest that the active causes may be dysfunctional and inflammatory because of the known malocclusion and gingival hemorrhage. A likely origin is pointed to by the normal basic metabolism and hematologic findings. Direct examination would decide whether a number of teeth need extraction or not.

The Child's Case

1. The role of heredity would be acceptable only after all the commoner factors had been ruled out.

2. If the oral hygiene is really good, a tentative suggestion would be to examine her for obstruction of the upper respiratory passages. Mouth breathing is a fairly common cause of inflammation of the anterior gingiva in children.

3. Since she is in the transition age between deciduous and permanent dentitions the bleeding may be associated with eruption of teeth.

Adapted from Queries and Minor Notes, *J.A.M.A.* **138**:934 (November) 1948.

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No DENTAL author can ever be *paid* for a valuable technical or scientific article. The value of such material is above a monetary basis. In the preparation of a technical article, however, an author often expends money for drawings, photographs, models, or graphs. We should like to help defray some of these expenses.

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The Women's Dental Society of New York, regular meeting, Statler Hotel, New York City, May 25.

Greater Pittsburgh annual meeting, combined with Pennsylvania State

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Dental Society annual meeting, William Penn Hotel, Pittsburgh, June 1-3.

American Academy of Dental Medicine, annual meeting, Statler Hotel, New York, June 4-5.

Connecticut Dental Commission, annual meeting, Hartford, June 14-18. For information write to Doctor Clarence G. Brooks, New London.

Massachusetts State Board of Dental Examiners, regular meeting, Boston, June 20-24. For information write to Doctor John C. Wilson, 413N State House, Boston.

Florida State Board of Dental Examiners, annual meeting, Seminole Hotel, Jacksonville, July 11-16. For information write to Doctor A. W. Kellner, P.O. Box 155, Hollywood.

to fit the base as a unit, the clasps would have failed as individuals. They did not fail.

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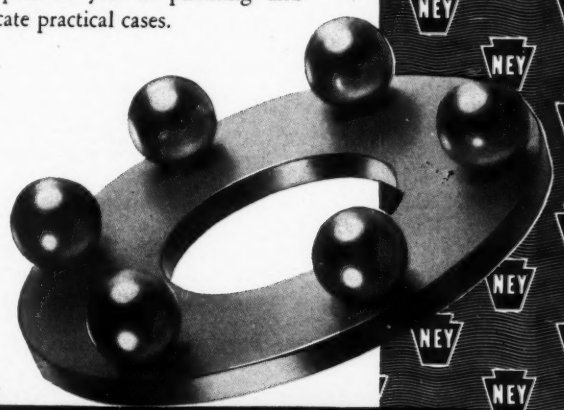

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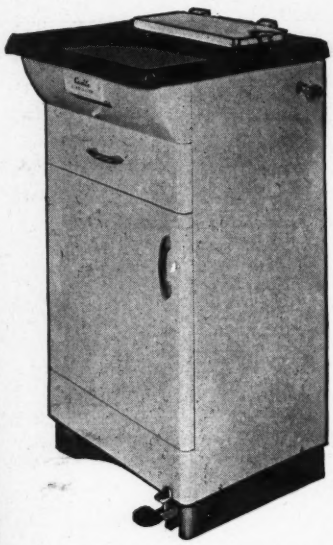

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